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NEW RESULTS IN THE STUDY OF CLUNY MONASTERY

KENNETH JOHN CONANT

THE DESTRUCTION of the earlier mediaeval churches and other monastic buildings at Cluny has left a great lacuna in the history of mediaeval ecclesiastical and conventual architecture. In the late tenth century and throughout the eleventh century the group at Cluny was the model and set the standard, being the focus and center of a highly organized monastic system which ultimately comprised about 1450 dependencies. At the time when the Congregation of Cluny was at the summit of its power and effectiveness the great third church (Fig. 1) was built as a sort of capitol church, or, to use another figure, as the spiritual hearth of the entire Cluniac group of monasteries which then extended from Spain into Middle Europe, and even possessed a few priories in the Near East.

In architecture the work of the abbey was very important. In the period of its greatest influence (which was inter-regional) monastic architecture was of primary rank because the monasteries played so vital a role in the economic, intellectual, spiritual, and governmental life of the time. Three successive great abbots of Cluny—Mayeul (948–994), Odilo (994–1049), and Hugh (1049–1109)—were interested in good building. They traveled to Rome and over wide areas in Western Europe. Personally or by directive they brought about the erection of at least four hundred churches and several thousands of other, less spectacular, monastic buildings. The building art of all Western Europe was the gainer because of the high ideals in this work. Abbot Hugh was interested in Roman, in Byzantine, and in Moslem art, specimens of which he saw during his sixty years of journeying on behalf of Cluny; the enrichment of Romanesque architecture during his lifetime unquestionably owes something to this fact, and the same thing may, of course, be said of sculpture and painting.

What we have lost at Cluny itself (Fig. 2) is a great architectural paradigm which, if it still existed, would bring our ideas of both tenth- and eleventh-century architecture into much sharper focus. If the imperial Cathedral of St. Sophia in Constantinople had been destroyed we would be in the same position with respect to Byzantine architecture, and it would be almost impossible to gain a clear idea of the potentialities of the Byzantine style at its culmination. The buildings at Cluny possess, in their way, the same relative importance for their own epoch. Cluny was indeed a monastic empire. Popes, kings, emperors, and saints figured prominently among its multitudes of visitors in mediaeval times.

So extended and widely ramified were Cluniac affairs that despite voluminous publications beginning in the seventeenth century, no general history of the abbey has as yet been achieved, and the same thing is true for the buildings of the mother house. By charter of September 11, 909 (not, as usually written, 910), the monks were given a Gallo-Roman villa, by then largely Carolingian in construction. They soon started to build and rebuild for themselves, and with negligible gaps they continued their progressive reconstruction of the monastery until, in 1790, the general expropriation of monastic properties put an end to a final huge project of rebuilding which had been under way since about 1750. Even without the difficulties introduced by the incessant demolitions and reconstructions, the architectural historian's task would be enormous at Cluny because of the great age of the earlier structures, and the ever-increasing scale of the later ones. The first church (*c.* 910–27) was about 120 feet long; the second church (*c.* 950–81 and later) was about 200 feet long; the third church (1088–1120 and later) ultimately reached a length of almost 615 feet English measure (Figs. 3 and 4). The monastery buildings in the reconstruction of 991–1043 were based on a 300-foot square ($334\frac{2}{3}$ feet English measure), but in the end the western building alone consisted of ten wings aggregating about 1744 feet (nearly a third of a mile) in length, with eleven towers of some size in addition to the 135-foot pair at the façade of the church narthex, which was functionally related to the western building. There was a concurrent development at the south and east in the monastery group.

It will surprise no one that a thorough study of this group has entailed over thirty years of work by the present author and several collaborators, especially Frédéric Palmer and Helen Kleinschmidt. During this long period, and with the aid of munificent grants from the John Simon

KENNETH JOHN CONANT *is winding up his monumental and definitive study of the Abbey of Cluny.*

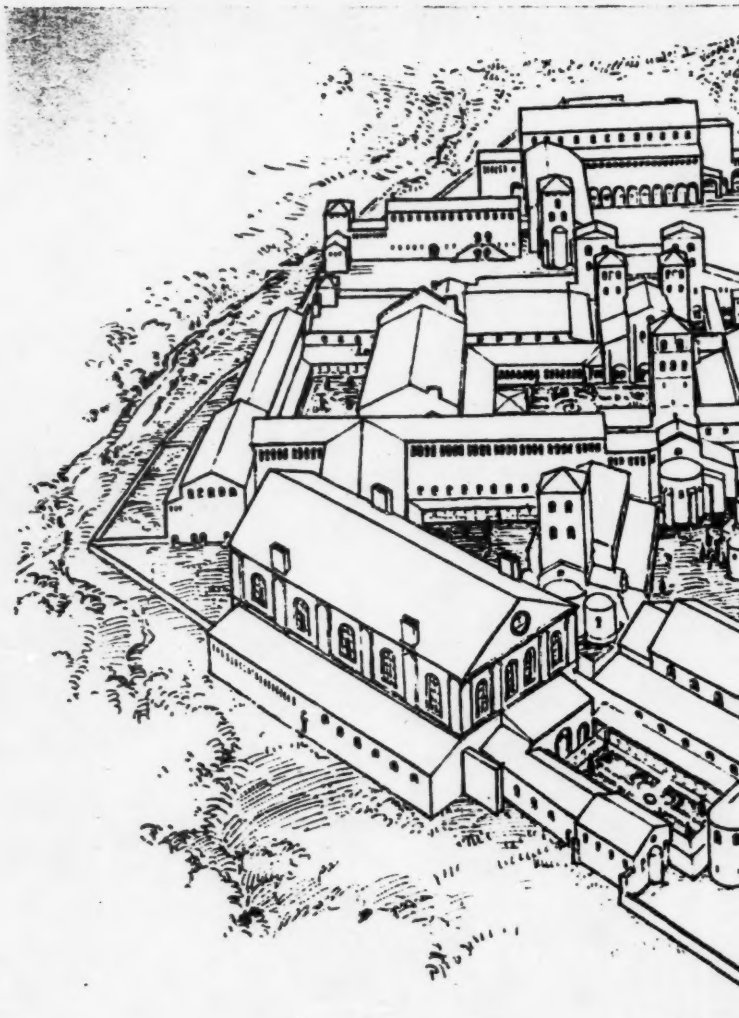


FIG. 1. Cluny. Birdseye view of the abbey from the southeast, as of 1156. The narthex of the
the Great Latrina, and the Great Infirmary Hall (left foreground) are the principal works of
(Author; courtesy of the Mediaeval Academy of America.)

arthex of the Great Church, the connecting wing of the stables,
pal works of Peter the Venerable, who died in that year.

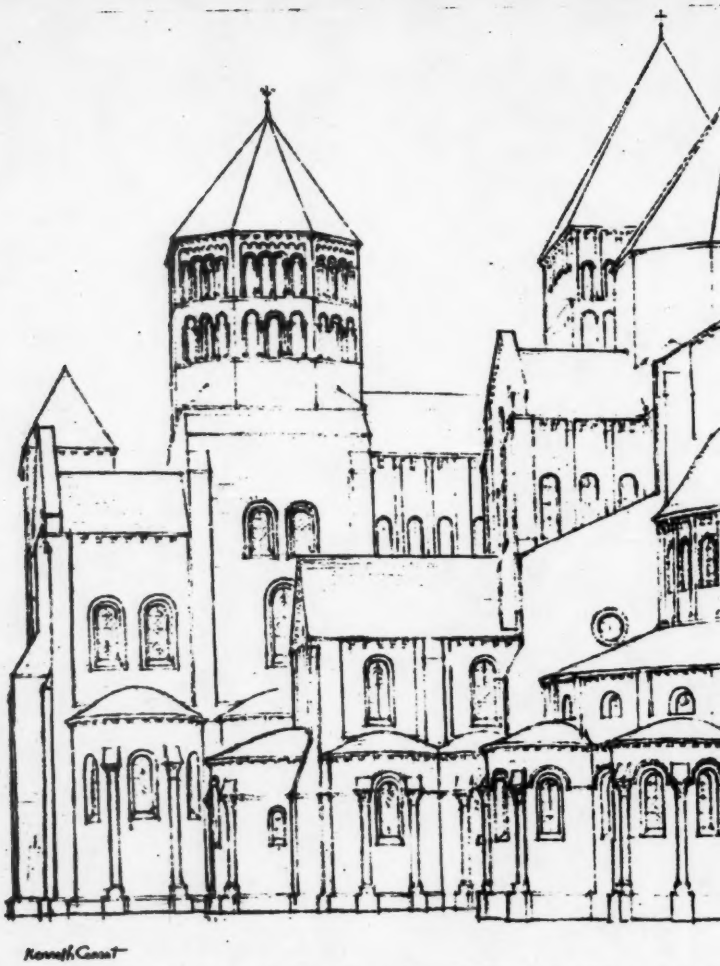
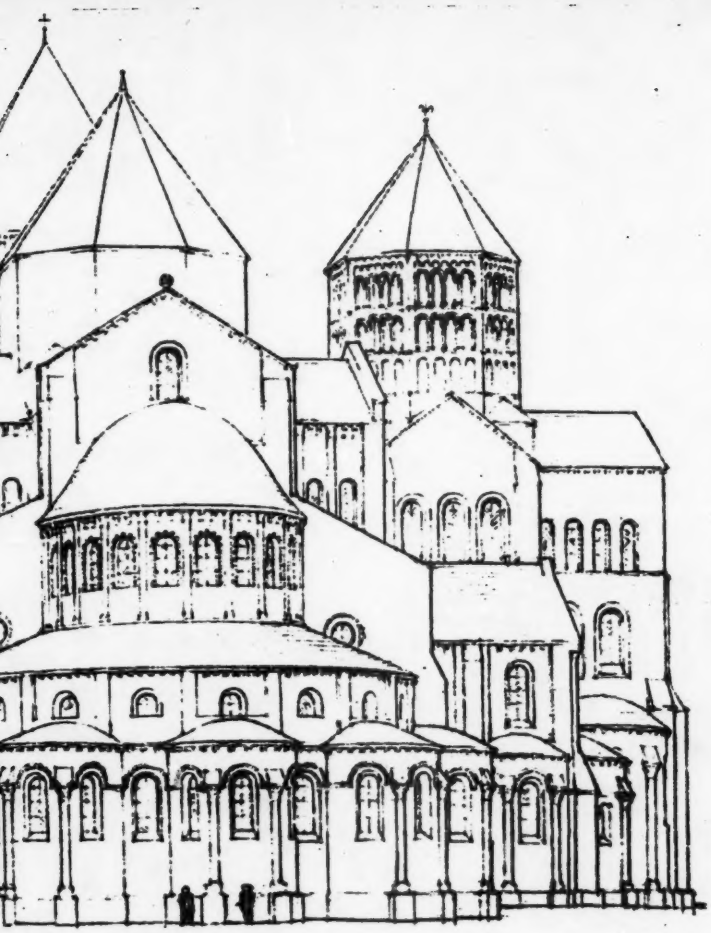


Fig. 2. Cluny. Southeast view of the Great Church, Cluny III. "Fundatio" 1088, chapel in sn
(Author; courtesy of the Mediaeval Academy of America.)



, chapel in small transeptal tower at extreme left dedicated in 1100.

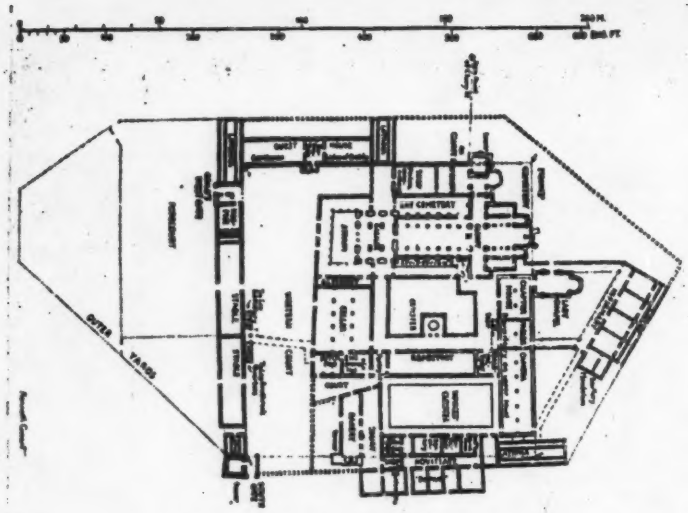


FIG. 3. Cluny. Plan of the monastery, as of 1043. Masonry in full black (except existing tower at south gate) traced by excavation. The 300-foot square is dotted in, with arrows marking the corners. (Author; courtesy of the Mediaeval Academy of America.)

Guggenheim Memorial Foundation and the Mediaeval Academy of America, supplemented by grants from the American Academy of Arts and Sciences and Harvard University (which also generously released working time and provided working space), a solution of the chief problems relating to mediaeval Cluny has been worked out. The study began as an attempt to provide "cavalier" views of the abbey, but the beauty and interest of the structures and the very fortunate opportunity to excavate parts of the site made it a rewarding task to seek exact results, though at times this meticulous work was monumentally tedious. The most important abstract result has been to bring out earlier dates for notable accomplishments in Romanesque planning, construction, and decoration. This aspect of the new studies is disturbing to conventionally-minded art historians—yet it ought to be easy for them (as for others) to realize that the works at Cluny, which were models, must necessarily have been earlier in date than the familiar derivative examples.

Particularly important for planning is the renewal of the conventual buildings at Cluny, which was carried out between 991 and 1043, approximately (Fig. 3). William of Volpiano, otherwise known as William of Dijon from his great achievement, the spiritual and physical regeneration of the Abbey of St. Bénigne at Dijon, joined Abbot Mayeul of Cluny in 987, stayed for a time at Cluny, and maintained his connections there after he was entrusted (by Abbot Mayeul's advice, about 990) with the reform of St. Bénigne. He was a designer, well capable of conducting building operations: at Dijon the "reverendus abbas magistros conducendo, et ipsum opus dictando, insudantes dignum divino cultui templum construxerunt." It is obvious that upon the completion of the second church at Cluny (981), Abbot Mayeul contemplated the reconstruction of the conventual group. It is not past belief that the basic square diagram of the new monastery was worked out by Mayeul and William of Dijon about 990. Odilo, who came to Cluny in 990 or 991, was a friend of William, and succeeded Mayeul as abbot in 994, carried the project through on an expanding scale, but only at the end (about 1040) were the lines of the generating square ignored. Previous to the construction of the "domus" of the novitiate, the buildings were ranged, at first inside, and later outside, along the boundary lines of the square. Even dimensions (often in 5's and 10's) were the rule.[1]

The scheme of this layout, which (with variations) was widely used in France, Germany, England, and Italy, has been a favorite piece of architectural puzzlement in the fifty-odd years which have elapsed since Father Hildephonse Schuster (later Archbishop of Milan) proved that a dimensioned description of a monastery found in the consuetudinary of the monastery of Farfa in Italy (1043) was in fact applicable to Cluny. The dimensions follow in general the itinerary of a visit of the claustral prior, and seem very definite to a literary art historian, but to a field archaeologist it is only too painfully evident, nevertheless, that they gave the exact count in feet of unknown length

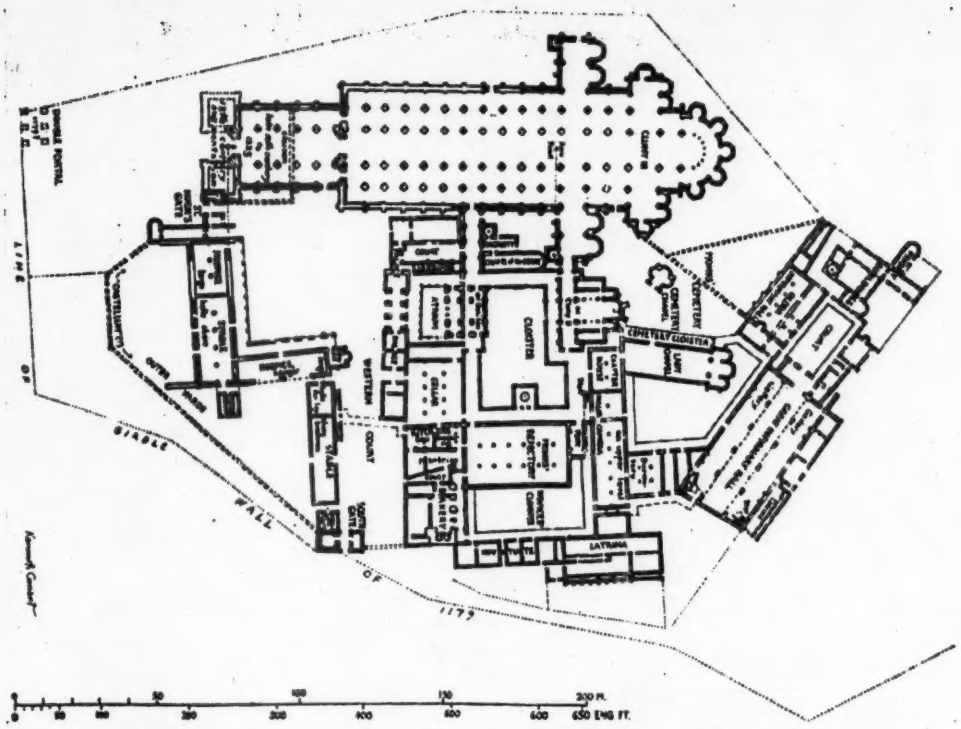


FIG. 4. Cluny. Plan of the monastery, as of 1156, with indication of certain later works. (Author; courtesy of the Mediaeval Academy of America.)

between undetermined points of a plan which was only vaguely localized.

The dimensions proved to include, in most cases, width or length of a room plus the thickness of one wall, which would indicate that the description was taken from a linear diagram resembling the Plan of St. Gall. The diagram may thus have been an actual working plan of the group. It was usual for ordinary wall work, timbering, windows, and so forth to be specified by description in mediaeval times. The foot in question proved to be 340 millimetres in length (close to the "pied de Lyon," of 311 millimetres, and noticeably larger than the English foot of 304.8 millimetres).

Though the foot-length did not change, a change of architect when the new works on the monastery were begun is indicated by the fact that the second church of Cluny, dedicated in 981, has the interior lengths and widths measured in even feet without the inclusion of one wall as in the conventual buildings. Interesting light is shed on the methods of mediaeval rhythmical design by the fact that the lateral dimensions run in 10's and 4's (10, 20, 40, 80 feet) whereas the longitudinal dimensions run in 7's (7, 14, 21, 28, 35, 49, 63, 77, 91, 133, 140 feet). Mathematical relationships of this kind in buildings were considered germane to musical ratios in the Middle Ages. Perhaps the plan of the church was worked out earlier, with the advice of Abbot Odo (†942), one of the noted figures in the history of early mediaeval music. Perhaps it was considered that the use of two architectonic rhythms —one odd, one even—gave a certain aesthetic life or shimmer to the design, which would have been absent in a more routine example with a single system of ratios. Something of the sort turns up later on in the use of the metrical modes of early polyphony.

The excavations yielded remains of what appears to have been an early infirmary—built about 930 perhaps, and demolished about 960. This infirmary, though imperfectly laid out, appears to be rhythmical. It actually dated from the time of Abbot Odo (927–42) when a foot of 320 millimetres seems to have been used. This foot was probably used in laying out the first church which was dedicated in 927, but our information is not sufficient to settle the matter.

With the beginning of extensive new works by Abbot Hugh not long after 1049, a new foot was introduced—interestingly enough, the classic Roman foot of 295 milli-

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metres (Fig. 4). Abbot Hugh's buildings were also rhythmical and modular; for instance the vast new stable and hospice (still existing in part) was 150 Roman feet long, 50 Roman feet wide, 60 Roman feet high to the cornice, and about 80 to the ridge. The start of the axis of the new church, Cluny III, built by Abbot Hugh beginning in 1088, was 105 Roman feet measured perpendicularly from the north-east corner of this building, and equally 105 feet from the north wall of the first church, which had by that time been transformed into a shop and a sacristy with a tower at its head.

The grand axis thus determined was 600 Roman feet in length, subsequently increased by addition at the west to 635 Roman feet (187 metres 325 millimetres; our surveyor's work gave us the actual figure of 187 metres 310 millimetres or 614 feet 10¾ inches English). The line from the tower mentioned above was of special importance. It marked the principal exterior ashlar line on the west side of the great transept of the new church. Measurements in both directions from this intersection or zero point (Fig. 4) marked rational and modular divisions in the basic plan of Cluny III. An eastward measurement of 150 feet marked the east end of the high part of the sanctuary; 175 feet, the back of the apse; 195 feet, the back of the ambulatory; 200 feet, the exterior of the drum of the ambulatory, beyond which the axial absidiole extended outward for 12½ feet to the eastern ashlar line of the church (Fig. 5). Measurements to the west of the zero point similarly gave 250 feet (with a correction, resulting from inaccurate setting-out) to the reverse of the west wall of the nave; 15 feet more, to the face of the Great Portal of the nave; 110 feet more, with a corollary of the correction above, gave 375 feet from the zero point to the reverse of the west wall of the narthex; beyond this the wall thickness was 12¾ feet, making an approximate total of 600 feet for the original parts of the church. The western towers (in fact a thirteenth-century augmentation of the scheme) added 33⅓ feet to this length. This, with the one-foot projection of the plinth at the eastern extremity of the church, gives a total of 635 Roman feet. The foot of 295 millimetres continued to be used at Cluny in Gothic times, but the pied du roi (324.8 millimetres) was used later on. Since some of our own measurements were made in English feet, five different foot-lengths were involved in this study.

Transverse dimensions were modular in the great church also: the nave was 33⅓ Roman feet wide, and the piers one-fourth of that, or 8⅓ feet in diameter (Fig. 6). Thus the two piers together measured half the width of the nave. The nave plus the two piers measured one-and-a-half times the width of the nave, or 50 feet, while the aisles, walls, and buttresses measured 50 more on each side, making a total width of 150 feet for the five-aisled part of the church—four-and-a-half times the width of the central nave, three times the width of the central nave plus the two piers, one-and-a-half times the distance to the crown of the nave vault. These are close approximations to actual measurements, and are taken in each case to features which architects always consider to be key points in the design, and not (as so often in theoretical work of this sort) to accidental intersections, or nexus points on bewildering superposed star-shaped or whirling figures.

The rhythm of vertical divisioning in the nave and sanctuary of Cluny III was no less remarkable than that of the plan, if one admits a small tolerance—appropriate because of the imperfections of mediaeval leveling devices. The datum level was practically at the threshold of the Great Portal, from which the pavement sloped downward 2½ Roman feet to the ambulatory (Fig. 6). The annular dwarf wall under the ambulatory columns stood 2½ feet high above the ambulatory pavement, reaching up to the datum level, from which the columns rose 30 Roman feet to the top of their impost blocks. We find, with some account taken of the slope here and there, that the spring of the inner aisle arches was at 40 feet, the triforium string course at 66⅔ feet (twice the width of the nave) the clearstory string at 80 feet, double the height of the aisle spring, and four-fifths of the height to the crown of the vault or 100 Roman feet, which dimension in turn is thrice the width of the nave, and two-thirds of the whole width of the five-aisled part of the church. The lateral elevation appears to have been rhythmic, in 9's, to the top of the original roof of the great crossing tower, at 180 feet, while the façade of the five-aisled nave, which stood free for some time without the narthex, was modular in 5's. Dimensions ending in 5 or 0 abound throughout the church: the chief modular unit was evidently five Roman feet. There were, in addition, interesting "modular sub-assemblies" based on units of 3, 5, 7, 8⅓ and 9 feet; examples of these have been given.

Again, the key may be in the fact that during the Middle Ages the mathematics of music and of design were to some extent assimilated to one another. The designer architect ("μηχανικός") who worked out the form of Cluny III was Gunzo, Abbot of Baume, who retired at Cluny and was known as "magnus psalmista"—obviously a well-trained musician. While musical ratios, which mediaeval thinkers considered fundamental to the order of the Universe, are in fact present in various buildings at Cluny, it must not be supposed that they had any exclusive prestige. One of the chief ratios of the interior of Cluny III (visually a very satisfactory one) is the relation of the level of the spring of the high vault, 80 feet up, to the crown, 100 feet, or 4 to 5. Mediaeval composers considered that the ratio 4 to 5 produced a dissonance, and it was generally inadmissible in their music.

Turning now to the practical side of the work—the work of Hezelo of Liège, the "ἀρχιτέκτων" of the church—

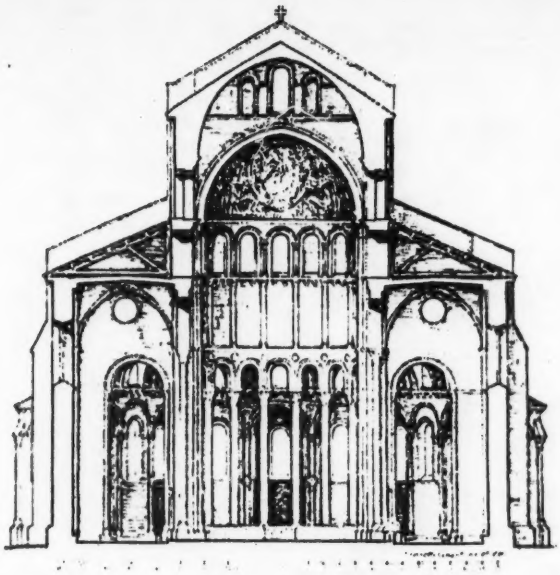

Fig. 6. Cluny. Transverse section of sanctuary bay, looking into the apse of Cluny III. The main altar omitted. Dedication of five altars, 1095; general dedication of the church, 1130. (Author; courtesy of the Mediaeval Academy of America.)

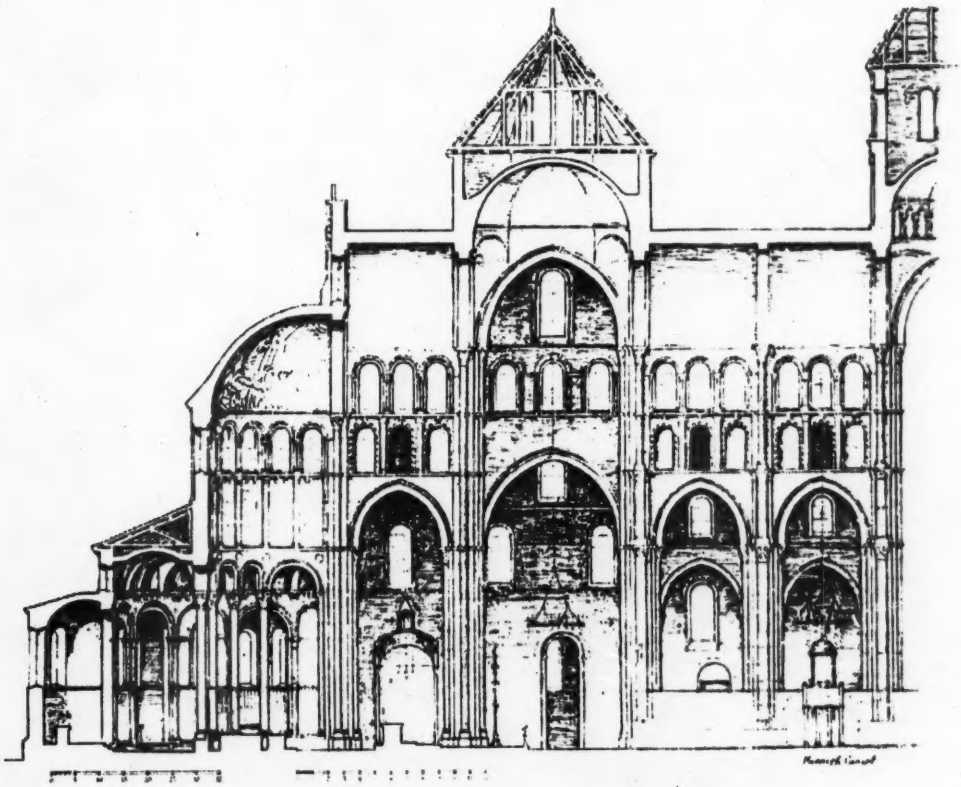

Fig. 5. Cluny. Longitudinal section of apse, sanctuary bay, eastern crossing, and choir of Cluny III, 1088–1100. (Author; courtesy of the Mediaeval Academy of America.)

we may say that it not only possessed noble proportions, but also evidenced very refined skills in the actual handling of its various parts. There was a deft and novel use of traditional architectural motifs, such as the half-oriental pointed arches of the aisle arcades and the unusual high-crowned groin vaults with nearly straight arrises over the aisles themselves. (This feature is South-Italian). There was great elegance in the moulding profiles, which were classical, and in many minor details, some of which, like the decorative horseshoe arches, had an oriental spiciness. The walls carrying the high vault of the nave were ingeniously corbelled inward about 11 inches, the better to receive thrust from this vault, the span of which was thus reduced by 22 inches (5 per cent) to about 34 feet 7 inches English measure. The shell of the vault, 1 foot 6 to 8 inches through at the thinnest part, was built of roughly shaped stones in strong mortar. It embodied the slightly pointed oriental profile which, approximately catenary in section, has a minimum of vaulting thrust.

The same artifice was used in the construction of the main apse, with the difference that here, in contrast to the more westerly parts of the church, the design was surprisingly light and open. The eight thirty-foot ambulatory columns which have been mentioned had shafts (six in marble) measuring only a foot and a half (or a little more) in diameter, yet they sustained nearly half of the ambulatory vaulting, plus nearly the whole of the apse wall (some 75 feet long) and the semidome. The ingenious corbeling already mentioned brought the apse wall to a thickness of nearly 5 feet at the spring of the semidome, 67 feet English measure above the pavement. As at the Gothic Cathedral of Beauvais, a sophisticated provision was made for the thrust of the ambulatory vault by placing the supports of the main apse eccentrically on the foundations: at Cluny there was a very substantial ring wall serving as foundation, with the columns located near its outer (ambulatory-ward) edge.

In view of the great slenderness and special function of the ambulatory columns, their drums, capitals, and impost blocks were joined together by stout iron dowels poured in lead. Cuttings show that the blocks were handled by lewises. It seems likely that because of its extraordinary boldness the clearstory wall of the apse, at least, must have been built of cut stones joined by cramps in the classical manner. The lower courses at least of the apse vault must have been (like the contemporary examples at St. Etienne at Nevers and St. Benoît-sur-Loire) built of cut stone, and perhaps also strengthened with cramps. At Cluny the engaging miniature version of the main apse which crowned the chapel of St. Michael above the Great Portal, had a vault entirely in cut stone, of which one section, only four inches thick, has been recognized among the museum fragments in Cluny.

In passing, one should note that the interior elevation of the great apse was very cleverly studied from the nave elevation of St. Paul's-outside-the-Walls, Rome, as it existed before 1823. There may have been a historic reason for this choice. In the tenth century when Abbot Odo of Cluny was archimandrite of the monasteries of Rome, he secured for Cluny from St Paul's an inestimable relic in the form of dust and scrapings from the coffins of Saints Peter and Paul, who were the patrons of Cluny. The relic was preserved in the high altar of the second church for some centuries.

At some time between 1750 and 1787 very steep new spires were built over the two transeptal crossings of the Cluny III. These spires, very handsomely proportioned, improved the relationship between the church and the adjoining very bulky new conventual buildings which were then under construction. To improve the relationship of the main apse, and perhaps to ameliorate conditions on its roof, the original cornice was removed, whereupon an arcade and upper structure studied from the apse at Paray-le-Monial were built, carrying the eaves to a higher level. Above the eaves there was built a new and nearly conical roof like that of the apse of Paray. The Lallemand drawings of 1787 show both of these features very clearly.

Earlier drawings (Prévost, 1670; Mabillon, about 1718; "Shmidt," about 1750) omit the arches and show a pronounced exterior semidome. This semidome is now understood and is seen in detail again for the first time after nearly 200 years in the accompanying east prospect of the great church (Fig. 2). An echo of the Dome of the Rock in Jerusalem seems to be there—particularly since the exterior of the ambulatory wall was polygonal (between and adjoining the radiating chapels—which naturally the Dome of the Rock did not have). I believe that the designer at Cluny had the Moslem building in mind, though he interpreted it suavely in the Romanesque mode. There may have been a symbolic reason for his choice, since the Dome of the Rock was believed at that time to be the Temple of Solomon, formerly existing on the same site. Just as every Jew was obligated to at least one visit to the Temple, so each individual Cluniac monk was expected to make his vows at Cluny, which was for him the earthly representative of the *urbs Sion aurea, patria lactea* —Jerusalem the Golden, hymned by Bernard of Cluny. It was, in the words of the builder Abbot Hugh's biographer, a *deambulatorium angelorum*—a place where angels tread, and where the monks celebrate, he says, "as if at Easter every day, because they have merited to go into that Galilee."

How will routine-tempted art historians receive this beautiful apse, so much more splendid than the ordinary Romanesque constructions of 1088–95? Such critics will no more find a place for this apse in a pedestrian chronological system based exclusively on the idea of small and consistent progressive improvements with passing time

than they did in 1920 for its famous ambulatory capitals. They rejected Arthur Kingsley Porter's proposal to date the capitals just before 1095, when five altars of Cluny III, all ready and prepared, were dedicated—two in the apse, and three more in the ambulatory. Certain of the French art historians (singularly purblind to this, their greatest early mediaeval site), have already offered the entirely gratuitous hypothesis, without any support whatever in the texts, that the apse was rebuilt about 1120.

The remains in situ were carefully studied with this possibility in view. Excavation revealed nothing in the foundations which would indicate an earlier apse. Instead, the foundation-work resembled that of Abbot Hugh's Lady Chapel (dedicated in 1085) (Fig. 4), which doubtless served as a sort of trial piece for the artisan crews who built Cluny III, where there was a ceremony—perhaps a kind of cornerstone ceremony—the "fundatio" of the church, on September 30, 1088. The apse had been copied with variations at Paray-le-Monial, and its sculpture, also with variations, at Payerne (Cluniac priories both) by 1100. The small chapel at the top of the square tower of the great transept at Cluny was dedicated in 1100; the church, including four or five bays of the nave, was in use by 1106, and in 1121 the church "of wonderful workmanship" is already referred to as "having been constructed." As Abbot Peter the Venerable says (after 1122), it was "*begun* on an admirable plan which distinguishes it from all other churches on the globe."

Let us therefore take courage from the majesty of Cluny and the boldness of the design; let us date the apse at the beginning of the works, where custom and the texts would naturally place it. Let us remember that Abbot Hugh visited Abbot Desiderius and his creative atelier, full of Byzantine and East-Moslem echoes, at Montecassino in 1083. It is not to be forgotten that Abbot Hugh had personal relations with the German Imperial house (Henry IV was his godson); that his institution possessed priories, as at Paderborn, in Byzantine-influenced Germany, and others (including Toulouse and Moissac) in art-rich Languedoc. So also in Spain, from which came West-Moslem influences and a considerable subsidy, doubled when Abbot Hugh met King Alfonso VI at Burgos in 1090. The abbot knew the artistic treasures of all these territories *himself*, and from Cluniac priories could obtain the choicest craftsmen by request or even command. His resources for obtaining superior craftsmen from emperors, kings, and princes by negotiation were unequaled, and his opportunities for training them, as by journeyman study, were unsurpassed. He could see beyond the architecture of the time and must, like Suger, have gathered a veritable academy of artists and architects, beginning about 1080, for the purpose of creating the "maior ecclesia." Some of these men were endowed—like Anthemios and Isidoros in late antiquity, like Brunelleschi and Donatello in the Renaissance—with the sublime energy of highest creative gifts. Their achievement was the building which stood as the masterpiece of Romanesque architecture until the regrettable demolition of the years 1798–1823.

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1. See *Speculum*, XXIX, 1 (1954), especially the bibliographical list on page 1 and Plate V (f), VI, VII, and VIII (a).

ST. BÉNIGNE AT DIJON AND THE ROMAN FOOT

ALICE SUNDERLAND WETHEY

AMONG THE LOST MONUMENTS of mediaeval architecture whose disappearance continues to leave a gap in architectural history which cannot yet be satisfactorily filled, the early eleventh-century church of St. Bénigne at Dijon (1001–1017 A. D.) is a conspicuous example. Its builder, William of Volpiano, was one of the great figures of mediaeval monasticism, and in William's life-time the monastery of St. Bénigne was the leading house of a loosely knit but very extensive association of Benedictine establishments distributed across Europe in a broad band from the English Channel to the upper Adriatic. Fécamp and Bernay in Normandy were two of the most northerly of these forty-odd monasteries, while in Italy the old foundations of Sant' Ambrogio in Milan and Sant' Apollinare in Ravenna also joined in the "Dijon-Fruttuaria" reform.[1] William of Volpiano's church in Dijon, consequently, holds a continuing interest for art historians. As an established link between Normandy and Lombardy it has been cited as the means by which several Lombard features, including the alternate system, may have been introduced into the Romanesque architecture of Normandy.[2]

Thanks to the monumental publication of Abbé L. Chomton in 1900,[3] the various stages by which William's church disappeared are well known. Surely some essential fault of structure or plan, in this writer's opinion, most probably the existence of an enormous crypt,[4] was the cause of a series of disastrous collapses of the crossing tower and vaults. The result was that in the thirteenth century most of the basilica was taken down, its crypt destroyed, and a new Gothic church was raised on the site. But the eastern parts of William's church were spared this general demolition. They consisted of a remarkable agglomeration of apses in echelon, interconnecting with a rotunda in three stories which was augmented by eastern chapels on the central axis also in three stories (Figs. 1–5). All this survived to be measured with exemplary care and published in engraved plans and sections by Dom Plancher, the scholarly eighteenth-century prior of St. Bénigne, whose monumental *Histoire de Bourgogne*[5] appeared in Dijon in 1739. These scale drawings, carefully captioned and accurately engraved, constitute one of the chief sources for our present-day knowledge of the great early Romanesque church built by William of Volpiano for, in the wave of destruction that followed in the wake of the French Revolution, most of these precious remnants were razed by specific order of the Directoire in 1792. Even the nineteenth century took its toll. The crypt of these eastern parts of the church, spared in 1792 by being filled with rubbish in order to level off the ground above into a terrace, was rediscovered accidentally in 1843 by workmen who were digging around the Gothic cathedral to equip it with lightning rods. But the excavators did too thorough a job of renovating walls and columns, and an inspector general had the work stopped. New excavations took place in 1868 and more restorations were made. It is not at all clear from the written accounts[6] what was done to the rotunda in the course of these operations, but a comparison of the dimensions of the crypt as shown in the plan of Dom Plancher (1739) and in a modern plan of 1896[7] makes it apparent that none of the columns was left in its original location. The outer wall was pared down and the columns redistributed on slightly larger concentric circles within the enlarged interior space. A mid-nineteenth-century lithograph (Fig. 6) gives further evidence of the over-zealous renovations.[8]

By unusual good fortune, an eleventh-century manuscript survives, now catalogued as No. 591 in the Municipal Library of Dijon, which, according to some authorities, is the original *Chronicon Sancti Benigni Divionensis*, but according to others, however, a later eleventh-century copy of the mid-eleventh-century original.[9] At any event, it gives a detailed contemporary account of the whole church complex as completed by William of Volpiano. Much of the description presents its own problems since the precise meaning of many of the complicated Latin phrases is very difficult to recapture today. However, it also provides many straightforward statistics such as the number of steps between floors, the number of windows and entrances, the number of piers and columns, as well as many dimensions, including widths, lengths, and even heights of the various parts of the structure, all recorded in cubits.

ALICE SUNDERLAND WETHEY *successfully combines mediaeval archaeology with parenthood and being a faculty wife at Ann Arbor.*

The elaborate plan indicated in Plancher's drawings and described in the Chronicle is that of a basilican church augmented at its east end by a rotunda with adjoining chapels. This plan has of late lost its once seemingly unique position and, thanks to the researches of French scholars, now appears as one of a series of early mediaeval Burgundian monuments with like arrangement, a belated Carolingian design, French in origin, not Italian.[10] But interest in the church continues, in no small part because the obscure language of the Chronicle allows more than one interpretation of the many features of the arrangement of the basilica, and even the shapes of its forty piers are the subject of a continuing controversy.[11]

Attempts have been made to reconstruct the vanished church in architectural drawings.[12] However, no one has undertaken to discover exactly what measure was used by William's builders in originally laying it out. It is proposed in this paper to show that the unit of measure of St. Bénigne can be determined.

The dimensions of the entire structure of St. Bénigne and of its several elements are given by the Chronicler in cubits. Although the cubit is universally considered to be a foot and a half, as a measure it is extremely indefinite because the length of the foot itself varied greatly in different periods and in different places.[13] For example, an ancient Greek foot by modern measurement proves to be 12.15 inches (.309 meters). In Rome and generally throughout Italy in late antique times a shorter foot of 11.613 inches (.2949 meters) was employed.[14] A royal foot (*pied du roi*) of 12.75 inches (.324 meters) was the common unit in France in the eighteenth century.[15] Modern research is slowly uncovering some very interesting information about the use of different units of measure in mediaeval buildings. Richard Krautheimer solved one of the puzzling aspects of the Carolingian church at Fulda by showing that the agent in Rome measured the church of St. Peter's in Carolingian feet (.3397 meters), whereas the architect in Fulda assumed that the figures sent to him had been taken in Roman feet (.2956 meters). Hence he used this Roman scale in his building, although it was contrary to local custom.[16] George Forsyth more recently [17] showed that at St. Martin of Angers the unit of measure varied greatly over the centuries: in the Roman "villa" a very short Roman foot of .293 meters was used, while in the Merovingian oratory the unit was a Germanic foot of .324 meters. The Germanic foot has been termed the native one and is said to have survived as the royal foot (*pied du roi*). A Roman foot of .2958 meters appears in the early church of St. Bertrand-de-Comminges.[18] At Cluny in the second church of 989 A. D., with which William of Volpiano was well acquainted, the builders used a very long foot of .340 meters as the unit of measure,

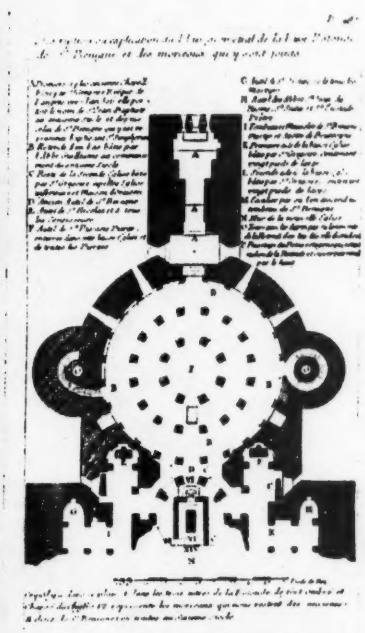

Fig. 1. St. Bénigne, Dijon. Plan of the crypt. From Plancher.

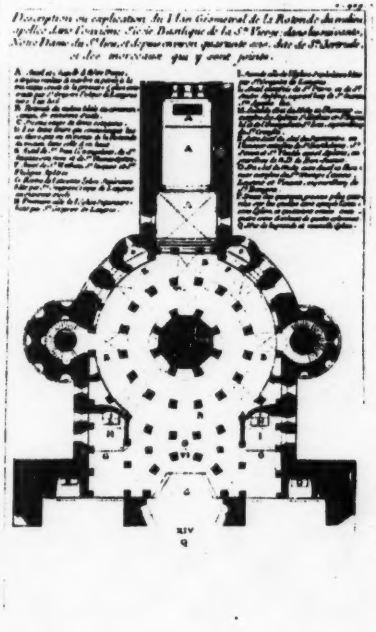

Fig. 2. St. Bénigne, Dijon. Plan of the main level. From Plancher.

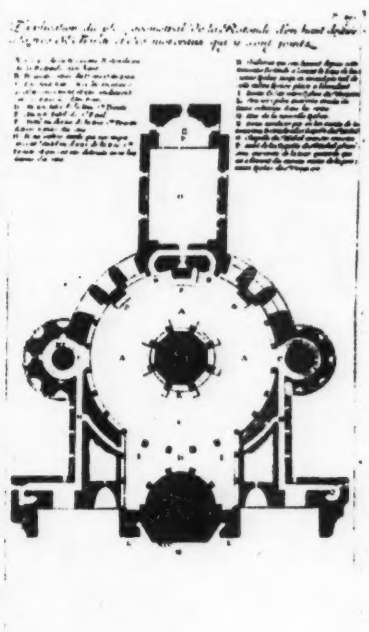

Fig. 3. St. Bénigne, Dijon. Plan of the gallery level. From Plancher.

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while the great third church of Cluny, begun in 1088 A. D., was based on a Roman foot of .295 meters.[19] It has been postulated that the Roman foot of Cluny III was imported directly from Italy, from Montecassino, but in general no pattern of any degree of clarity has as yet emerged from the complexity of mediaeval measures. The Roman foot varies a little, as is obvious from these several citations which range from .293 meters to .2959 meters. These variations, however, of only 2.9 millimeters are very slight indeed previous to the existence of a modern Bureau of Standards. The longer units, which seem to be northern in origin, show more diversity. Although the Carolingian foot at Fulda and the unit at Cluny II vary from each other only .3 millimeters from .3397 to .340 meters, the Germanic foot and the royal foot are 16 millimeters shorter at .324 meters.

In the case of St. Bénigne we fortunately have the scale drawings of Plancher in which a unit of definitely known length was used, the French royal foot, equivalent to 12.75 modern inches or .324 modern meters.[20] Some of the interior dimensions cited by the Chronicler in cubits can be thus checked against the same dimensions recorded by Plancher in royal feet.

One of Plancher's drawings (Fig. 1) shows the diameter of the rotunda at the basement level to be 50.5 royal feet, which at .324 meters per foot equals 16.362 meters. The Chronicler gives the same diameter as 37 cubits (*rotundo . . . XXXVII cubitos habens in diametro*) or 55.5 feet of undetermined length. Therefore 55.5 feet equal 16.362 meters and simple division shows that the Chronicler's foot was .2948 meters. Thus the unit of measure of St. Bénigne appears to be the short Roman foot that crops up in northern Europe in a sporadic pattern throughout the Middle Ages. Other figures drawn from others of Plancher's drawings serve to confirm this conclusion. A dimension given by the Chronicler in cubits, which can be checked against Plancher's drawings, is the height of the basement story of the rotunda (Fig. 1). This is given in the Chronicle as 10 cubits (*decem in alto*), and if the cubit is based on the Roman foot of .2948 meters it exactly equals the height shown by Plancher. It seems altogether probable that the length of the main axial eastern chapel is an additional dimension which can be used to serve a similar purpose. The Chronicler says that the chapel is 33 cubits long. If this measurement were applied to the chapel on the main level (Fig. 2) it would exactly equal Plancher's measurement on the assumption that the cubit is based on the Roman foot of .2948 meters. The Chronicler states, however, that the measurement applies to the chapel on the third level (*sancti Michaelis . . . oratorium, habens in longitudine cubitos XXXIII*). This must be considered an error, for Plancher's drawing (Fig. 3) makes it perfectly clear that the chapel on the third level could not possibly have been that long. Instead of being 33 cubits, its length was less than 21 cubits. No one could make a mere error in measurement of that magni-

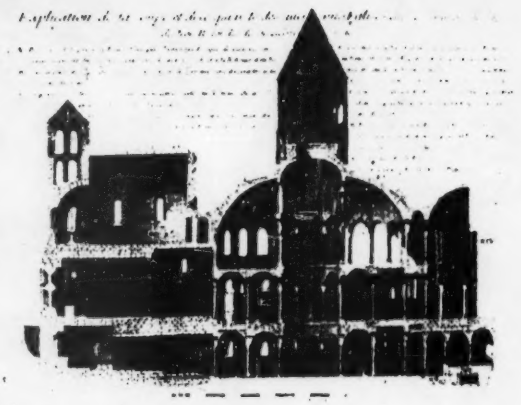

Fig. 4. St. Bénigne, Dijon. Vertical section. From Plancher.

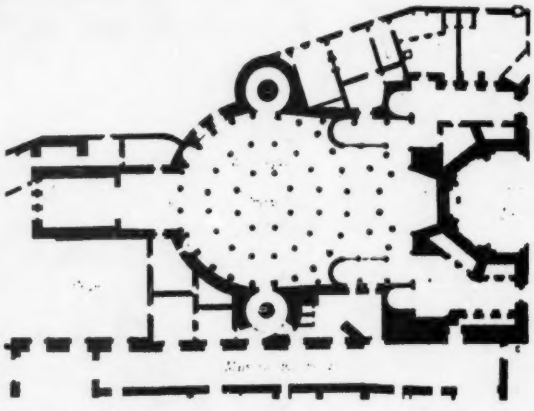

Fig. 5. St. Bénigne, Dijon. Detail of Directoire plan of 1791. After Chomton.

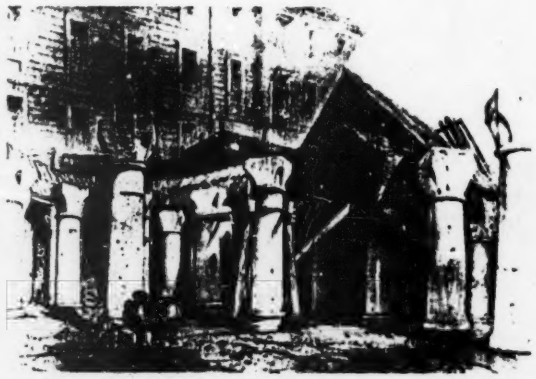

Fig. 6. St. Bénigne, Dijon. Lithograph showing mid-nineteenth-century reconstruction of the crypt.

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tude. It must be concluded that the Chronicler made his measurement of the chapel on the main level and erroneously assigned it to the chapel on the level above.

A correspondence may be also found between the width of the church, as given by the Chronicle, and the width as measured from Plancher's drawings, through the use of supplementary evidence available in the plan of 1791 drawn up by order of the Directoire (Fig. 5).[21] Plancher's plan covers the apses of the basilican church, but does not include the whole area of the sanctuary. The Directoire plan, however, extends over both the apses and the sanctuary, showing the apse of the Gothic church completely surrounded by elements of the sanctuary of the earlier Romanesque structure. It is clear from the Directoire plan that the distance between the outer walls of the side apses is precisely the same as the width of the sanctuary. This distance when measured on Plancher's plan is exactly the 53 cubits (*in latitudine . . . est quinquaginta tres*) mentioned in the Chronicle as the width of the church, if those cubits are based on the Roman foot of .2948 meters.[22]

Perhaps the use of the Roman foot in this French church should not be considered surprising, for William of Volpiano was an Italian, and there were associated with him in the monastery at Dijon a large number of learned Italian monks. The Chronicler says of them that "many from their own land, which is Italy, began to come to join him, some well educated in scholarly subjects, others well versed in all kinds of crafts, others gifted in agricultural knowledge. Their arts and talents were of the greatest benefit to this place."[23] Nothing could be more reasonable than that these Italian monks should have used in the building of the church of St. Bénigne the measure employed in their native land.

1. D. Bruno Albers, *Consuetudines monasticae, Vol. IV, Consuetudines frutuarienses* (Monte Cassino, 1911), on pp. 263-271 gives an index of the monasteries reformed by the Abbeys of Dijon and Fruttuaria. A chart between pp. 272-273 shows the full filiation and dates of acceptance of this reform rule, which continued to spread throughout the twelfth century. Dom Philibert Schmitz, in *Histoire de l'ordre de Saint Benoît* (2nd ed., Maredsous, 1948), t. I, includes three maps of the Dijon-Fruttuaria reform on pages 415, 417, and 418.

2. The present author disagrees completely with the theory that St. Bénigne had the alternate system in its supports and intends to discuss the matter at length in an article to appear at a later date.

3. Abbé L. Chomton, *Histoire de l'église Saint-Bénigne de Dijon* (Dijon, 1900). See also Abbé L. Chomton, "Note sur la reconstruction partielle de l'église Saint-Bénigne au douzième siècle," *Mémoires de la commission des antiquités du département de la Côte d'Or* (Dijon, 1909–1913), XVI, 20-27.

4. Viollet-le-Duc, *Dictionnaire*, IV, 554, "On peut donc considerer la crypte de Saint-Bénigne de Dijon comme la plus vaste des cryptes connues."

5. Dom Plancher, *Histoire générale et particulière de la Bourgogne* (Dijon, 1739), I, 458, 479, 489, 491, and 499.

6. Chomton, *Histoire de l'église Saint-Bénigne*, pp. 308–309, 335-336; Victor Petit, "Visite de la cathédrale, de la crypte de St.-Bénigne . . . de Dijon," *Congrès Archéologique* (Dijon, 1852), pp. 34–42.

7. Published by Chomton, in his *Histoire de l'église Saint-Bénigne*, Pl. XXVI.

8. The lithograph was designed by Cambon and printed in Paris by Lemercier. A copy of it, apparently acquired about 1860, exists in the Municipal Library at Dijon. Almost all of the vaults are shown to be missing and various columns are shored up with large timbers.

9. The old number which is cited in all the publications of this manuscript is 348. See Chomton, *Histoire de l'église Saint-Bénigne*, pp. 96–99 and 137; Victor Mortet, *Recueil de Textes* (Paris, 1911), pp. 26–32; Bougaud and Garnier, "Chronique de l'Abbaye de Saint-Bénigne de Dijon," *Analecta Divionensis* (Dijon, 1875), Vol. IX; *Catalogue générale des manuscrits des bibliothèques publiques de France. Départements, Tome V (Dijon)* (Paris, 1889), p. 151.

10. See Jean Hubert, *op. cit.*, pp. 60, 64–65, and Abbé Gabriel Plat, *L'art de bâtir en France des Romains à l'an 1100* (Paris, 1939), p. 37.

11. This matter will be discussed fully in the forthcoming article mentioned in note 2.

12. Chiefly those of Abbé Chomton in *Histoire de l'église Saint-Bénigne* and in his later work entitled *Saint-Bénigne de Dijon, les Cinq Basiliques* (Dijon, 1923). My own reconstruction drawings form part of a doctoral thesis written under the direction of Kenneth J. Conant and accepted at Harvard and Radcliffe in 1946. My earlier tentative study of the floor plan at the main level is published as Plate XXXVI in K. J. Conant, *Early Mediaeval Church Architecture* (Baltimore, 1942). This drawing was made before I worked out the use of the Roman foot at St. Bénigne and in a number of details it differs from my present views. A perspective restoration drawing by K. J. Conant based on the final plans in my thesis is published in his *Benedictine Contributions to Church Architecture* (Latrobe, Pennsylvania, 1949), Fig. 15.

13. *Encyclopaedia Britannica*, 14th ed., article on Measures and Weights by W. M. Flinders Petrie.

14. *Ibid.*

15. F. Gattey, *Anciennes mesures* (Paris, 1810), pp. 127, 131; M. Saigey, *Métrologie* (Paris, 1834), p. 109.

16. Richard Krautheimer, "The Carolingian Revival of Early Christian Architecture," *Art Bulletin*, XXIV (1942), 11. Mr. Krautheimer does not give the metric equivalent of the Carolingian foot, but it can be readily worked out from his other equivalents.

17. George H. Forsyth, Jr., *The Church of St. Martin of Angers* (Princeton, 1953), pp. 23-24. In note 4 are bibliographical references for several mediaeval measures.

18. *Ibid.*, p. 23, note 4.

19. Kenneth J. Conant, "Mediaeval Academy Excavations at Cluny, VIII," *Speculum*, XXIX (1954), 5 and 10. It should be noted that the figures for Cluny II and Cluny III represent interior measurements as do the dimensions at St. Bénigne discussed in this paper. Carolingian usage seems to have differed in that architects then normally laid out their plans from wall-center to wall-center (Krautheimer, *op. cit.*).

20. The scales given on two of the drawings, the plan of the basement level and the vertical section, bear the legend *pieds de roi*. See Figs. 1 and 4.

21. Published in Chomton, *Histoire de l'église Saint-Bénigne*, Plate XVIII.

22. It is possible that in another copy of Plancher the various measurements cited here would be found to vary slightly. My measurements of the rotunda were made from the plan of the crypt (basement level) on the east-west axis within the outer line of columns and decorative half-columns. I have considered the length of the axial chapel on the main level as the full interior space from the rotunda to the east wall and thus including the line of columns. The height of the crypt of the rotunda was taken from the barrel-vaulted inner aisle to the left of the central well.

23. This and the other Latin quotations in this paper are all transcribed directly from the Chronicle itself.

MORE ANALOGIES BETWEEN CHARLIEU AND ANZY-LE-DUC

ELIZABETH R. SUNDERLAND

THE TITLE is adapted from that of the article by Jean Vallery-Radot in the *Bulletin Monumental* of 1929 entitled "Les analogies des églises de Saint-Fortunat de Charlieu et d'Anzy-le-Duc." Monsieur Vallery-Radot, inspired by the excavations at Charlieu of 1927 which proved the two churches to have had almost identical plans, pointed out many analogies between the two and argued that Charlieu was the model and Anzy-le-Duc the copy.

Raymond Oursel has raised again the question as to which church was the original in his recent volume, *Les églises romanes de l'Autunois et du Brionnais* (Mâcon, 1956). Monsieur Oursel would like to consider Anzy-le-Duc the model and Charlieu the copy.

The two buildings were masterpieces of Burgundian architecture and represented a style which spread far and wide in Romanesque times. One or the other may very well have been the first to use the (later typical) Romanesque pier with attached half-columns and sculptured capitals, doubled archivolts in the nave arcades and doubled archivolts forming transverse arches across the naves. The cruciform plans (Figs. 1 and 2) represent a variant of the so-called Benedictine plan, now known to be Cluniac since the excavation of Cluny II by Kenneth John Conant, with apses in echelon. The two churches, however, differed from all other churches with apses in echelon in the addition of an axial apsidiole opening directly from the main apse. They were built by monasteries belonging to two powerful abbeys in the Burgundian area. Charlieu was a dependency of Cluny, Anzy-le-Duc a dependency of Saint Martin of Autun. To know which church was the original and which was the copy is of primary importance for a knowledge of the development of architecture in the Romanesque period. It is a question as to whether Cluny or Saint Martin of Autun was responsible for a style which spread all over Europe. Charlieu is largely destroyed, Anzy-le-Duc exists in its entirety.

Documents concerning the buildings are very scarce. All that we know about the church at Charlieu is contained in a reference in the almost contemporary biography of Saint Odilo (Abbot of Cluny from 994 to 1049 A.D.) which seems to state that he completely built the monastic layout as well as the church,[1] and a reference in De Sevelinges[2] to a vanished manuscript which states that the church was consecrated in 1094 in the presence of many notables including the Bishop of Compostela. It is possible that Dalmace, then Bishop of Compostela, was in France at the time.[3] All our information about the church at Anzy-le-Duc is contained in a reference in the eleventh-century biography of Hugh of Poitiers (a companion at one time of Berno, the first Abbot of Cluny), who was an early prior and perhaps the founder of the priory of Anzy-le-Duc. This says that, after 1001, when Hugh's relics were taken to the Council of Anse, the enthusiasm of the crowds was so great that it was necessary to build a new church to contain his tomb.[4] The two churches could, then, have been begun around the year 1000.

The style of the existing parts of Charlieu, the western bay of the nave and the façade, is that of the last decades of the eleventh century. Architectural historians, including Monsieur Oursel, (on the basis of the style of the nave sculptures) assign a slightly later date than Charlieu to the nave of Anzy-le-Duc. The church at Anzy-le-Duc, however, was obviously built in two parts. The apses and the transept form a block clearly constructed some time before the nave. This part of Anzy-le-Duc could antedate the church at Charlieu. It is, therefore, possible that Anzy-le-Duc originated the plan of the two churches. On the other hand, the excavated foundations of Charlieu show the unusual feature of a retaining wall running between the two easternmost piers of the nave (Fig. 3). Such a foundation could have been built to strengthen an eastern part left unfinished. Also, as the writer has shown elsewhere,[5] (adding to the statement of Saint Odilo's biographer the fact that the church at Charlieu is laid out in the 34-centimeter foot used by Saint Odilo at Cluny[6]) the church was most probably begun by Saint Odilo. Saint Hugh of Cluny, during whose abbacy (1049–1109) the church at Charlieu was consecrated, used a 29.5-centimeter foot in his new constructions at Cluny.[7] Charlieu also, then, could have been constructed in two parts. This idea is reinforced by the fact that the bases and capitals of the

ELIZABETH R. SUNDERLAND *is the authority on the Cluniac Abbey of Charlieu.*

columns of the western door are in a style obviously very much earlier than the style of the tympanum and lintel.[8] These parts could have been prepared when the transept and apses were under construction with the expectation that the church would soon be completed. When the building was finally finished the old bases and capitals were used. The style of these capitals and bases of the main door of Charlieu is more archaic than the style of the capitals and bases of the transept and choir of Anzy-le-Duc, a fact which can indicate an earlier date for the eastern parts of Charlieu.

Monsieur Oursel in arguing the priority of Anzy-le-Duc points out that the arrangement of an axial apsidiole opening from the main apse of the church is to be found elsewhere in Burgundy only at Charlieu. He thinks that perhaps this is a feature from Poitou brought by Hugh of Poitiers,[9] but he cites no examples to bolster his statement. Then he mentions the plan of Saint Martin of Autun (Fig. 4), which does, indeed, show a chapel to the east of the main apse, as a possible source for the idea of the apsidiole at Anzy-le-Duc. The chapel of Saint Martin, however, is a completely separate building connected to the apse of the church by a corridor more than half as long as the chapel, while the apsidiole of Anzy-le-Duc opens directly from the main apse. To the present writer a better source for the idea is to be found in the earlier churches at Charlieu. The ninth-century church at Charlieu (Charlieu I) had an axial apsidiole opening directly from the corridor around the main apse (Fig. 3). This feature was apparently retained in the tenth-century rebuilding of the church (Charlieu II) by the Cluniacs.[10] Its dimensions (270 centimeters wide by 310 centimers deep) are exactly those of the axial apsidioles of both the eleventh-century churches of Anzy-le-Duc and Charlieu, with the exception that the dimensions at Anzy-le-Duc are taken from the opening into the main apse, while those of Charlieu are taken from the opening beyond the wall of the main apse (Figs. 1 and 2).[11] These are the only measurements of the two churches which agree absolutely in terms of modern meters. Charlieu surely did not go elsewhere for the

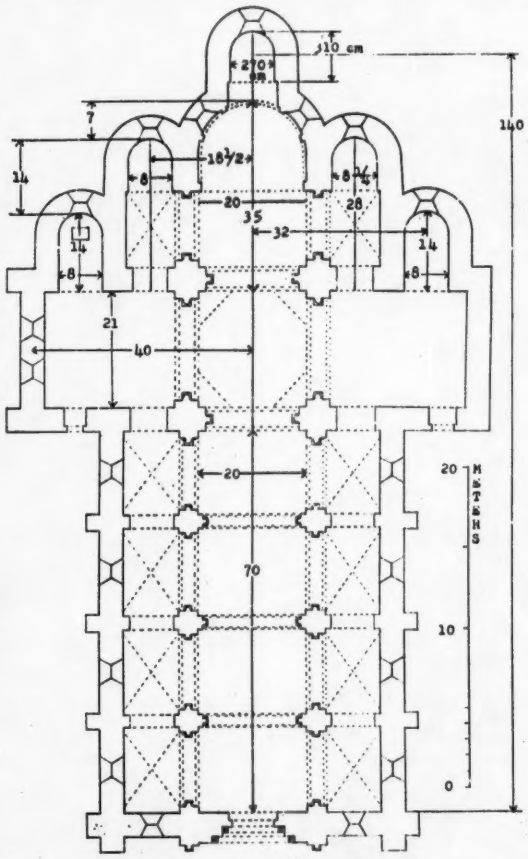

Fig. 1. Abbey of Charlieu. Eleventh-century church. Restored plan. Measurements are in 34-cm. feet. (Author 1957)

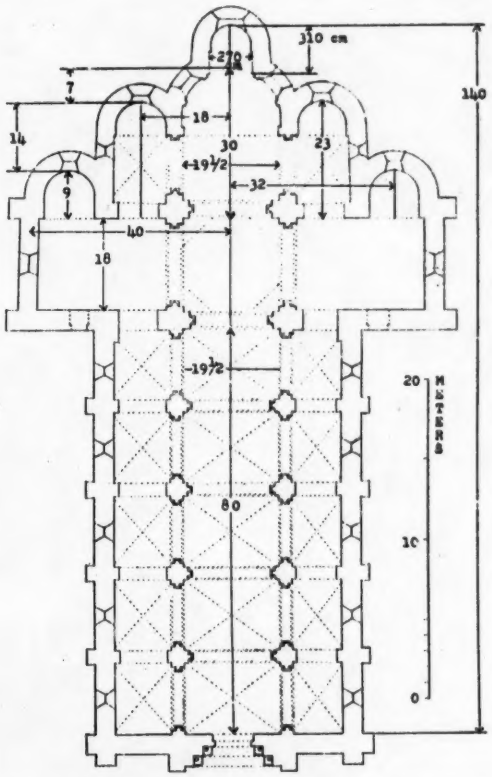

Fig. 2. Priory of Anzy-le-Duc. Eleventh-century church. Plan. Measurements are in 31.5-cm. feet. (Author 1957)

idea of an axial apsidiole in order to reproduce the dimensions of its old one.

Monsieur Oursel would also like to think that the existence of a crypt at Anzy-le-Duc indicates priority. No crypt existed in the eleventh-century church of Charlieu. According to Joan Evans, however, the Cluniac order avoided crypts.[12] In rebuilding Charlieu I the Cluniacs apparently eliminated the original crypt but kept the corridor and the apsidiole.[13] Monsieur Oursel in developing his thesis brings up the fact that the eastern wall of the crypt (which includes the main apse with its apsidiole and the apses terminating the aisles) is thicker at the ground level than above and that a sloping off, forming a water-table, occurs about 2 meters above ground (Fig. 5). He thinks that the crypt is earlier than the rest of the church and that the water-table is a means for adjusting the thicker crypt walls to the thinner sanctuary walls above. But if this is so it is curious that the transept apses which have no crypt under them possess the same thickening of the base of the wall. Continuing his argument Monsieur Oursel states that the transept apses are wider (and his sketch plan[14] shows them so) and therefore could be later. The transept apses are indeed deeper than the other ones, but the widths of all four side apses are too similar to permit the idea of two building campaigns: N transept apse 311 centimeters, N aisle apse 310 centimeters, S aisle apse 300 centimeters, S transept apse 309 centimeters. In addition there is no discernible change in the exterior masonry from the base of the wall to the top in the whole east end of the church except for changes in windows and doors. The whole block must have been constructed at once.

The water-table of the apses of Anzy-le-Duc seems to the writer merely the result of a normal evolution of the First Romanesque Style. That Anzy-le-Duc is related to the First Romanesque Style is attested by the arched corbel table and pilaster strips decorating the interior of the main apse (Fig. 6). In the First Romanesque Style a thickening of the lower part of the exterior wall furnished a base for the decorative pilaster strips. The height of the base varied widely from church to church and a slope was sometimes constructed at the top for the obvious reason of letting the water run off. As the style developed and the idea came in to eliminate pilaster strips the thickening of the base continued, perhaps because with the development of vaulting foundations heavier than the walls above were necessary. One can cite cases, such as Sant Jaume de Frontinya,[15] where all the apses have a thickened wall base though pilaster strips appear only on the main apse. At Caldes de Malavella,[16] all that remains of the decorative system of the First Romanesque Style is the arched corbel table on the center apse and the thickening of the base of the wall and all three apses. The projection of the lower part of the wall at Anzy-le-Duc is 18 centimeters, which is exactly the same as the projection of the base from which rise the pilaster strips on the interior of the main apse. The typical First Romanesque decorative scheme was simply moved indoors at Anzy-le-Duc, leaving outside only a reminiscence in the water-table.[17] Also Charlieu, though it had no crypt, apparently had a similar water-table. The model of the church held by the statue of King Boso of Burgundy on the twelfth-century porch of Charlieu clearly shows this feature.[18] There is, then, no reason to think that the water-table of Anzy-le-Duc has any special connection with the crypt or that it proves the crypt to be earlier than the church. As for the interior of the crypt there is nothing which can give any indication of date for the construction. The six columns, with their capitals and bases, supporting the floor of the sanctuary above, are obviously re-used, and the masonry of the groin vaults has no special characteristics which could assist in assigning an earlier date to the crypt than to the church above.

The matter of the difference in vaulting—groins for the nave of Anzy-le-Duc, a barrel, with windows in penetration, for the nave of Charlieu—has also attracted the attention of archaeologists. To the author there is little in the problem. The transept and choir of Anzy-le-Duc are vaulted in the normal Burgundian fashion of the eleventh century: barrels are used for the high vaults and groins for the aisle bays of the choir. It would seem to the writer that Anzy-le-Duc merely changed the system to

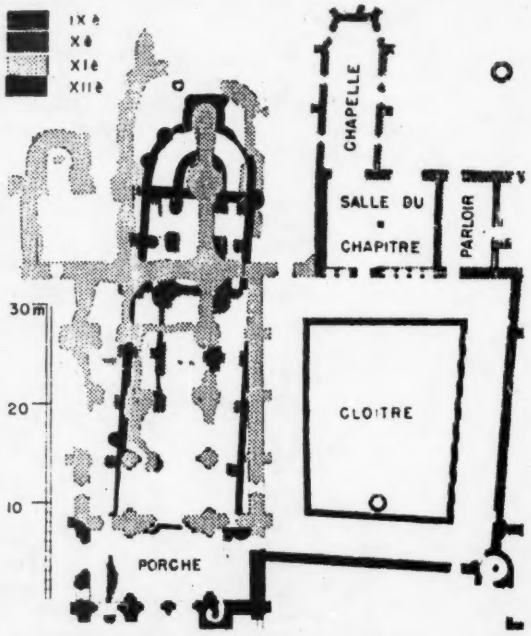

FIG. 3. Abbey of Charlieu. Partial plan of the ruins. (Author 1957)

an entirely groin-vaulted one in its nave with the realization, which apparently became current at the turn of the twelfth century, that barrel vaults were not very stable. The chief features are the same for the two buildings: compound piers with attached half-columns on three sides, doubled archivolts for the nave arcades and for the transverse arches of the nave. There is nothing in the vaulting system which can argue for the priority of Anzy-le-Duc.

A study by the present writer during the past year concerning the lengths of "foot" used respectively in Charlieu and Anzy-le-Duc, involving the preparation of new and very accurate plans of the two buildings (Figs. 1 and 2), makes it possible to consider the problem of priority from a new angle.

The church at Charlieu was laid out in a Carolingian foot of 34 centimeters in length. The building was 140 feet long from the center of the apsidiole[19] to the inside of the façade wall. The transept was apparently planned to be 80 feet long from wall center to wall center.[20]

Anzy-le-Duc was laid out in a foot of 31.5 centimeters, not the 34-centimeter foot of Charlieu. The building, however, has exactly the same dimensions as Charlieu in terms of numbers of feet. The church is 140 feet long, interior measurements, and 80 feet from wall center to wall center across the transept at the eastern side.[21] The structure is, of course, smaller than Charlieu because the length of "foot" used is shorter than that of Charlieu.

The apses in echelon of the two churches have the same relationships in extension eastward—the eastern walls of the aisle apses are 14 feet to the east of the transept apses, and the eastern walls of the main apses are 7 feet beyond those of the aisle apses (Figs. 1 and 2). Only the differences between the eastward extensions of the apses of the two buildings are related, the actual dimensions are not. The extensions eastward from the transept wall of the apses of the two churches in terms of numbers of feet are as follows: transept apses—Charlieu 11, Anzy-le-Duc 9; aisle apses—Charlieu 28, Anzy-le-Duc 23; main apses—Charlieu 35, Anzy-le-Duc 30. In Charlieu the differences and the dimensions are related to seven; in Anzy-le-Duc only the differences between the depths are related to seven.

The widths of the apses in echelon of the two structures, with the exception of the axial apsidioles,[22] have no relation to each other. At Charlieu they are all 8 feet wide with the exception of the south aisle apse which is 8¼ feet (Fig. 1). At Anzy-le-Duc (the exact dimensions have been given above) the measurements approach 10 feet.

Other dimensions of the two churches in terms of numbers of feet are identical or remarkably close. The distance from the center of the building to the center of the south transept apse is 32 feet in both churches. The distance from the center of the building to the center of the north aisle apse is 13½ feet in Charlieu and 18 feet in Anzy-le-Duc. The nave of Charlieu is 20 feet wide, that of Anzy-le-Duc 19½ feet wide. (Figs. 1 and 2)

Some major measurements of the two churches, however, do not correspond at all. The transept at Charlieu was 21 feet wide, that at Anzy-le-Duc 18 feet wide. The nave of Charlieu was 70 feet long, that of Anzy-le-Duc 80 feet long. The above measurements at Charlieu are related to seven, those at Anzy-le-Duc have no connection either with seven or with each other.

Closer scrutiny of all the dimensions cited shows that Charlieu has a consistent use of 7's in longitudinal measures and 4's in transverse measures, while Anzy-le-Duc does not. The transept apses of Charlieu measure 14 by 8 feet, the sanctuary 35 by 20 feet, the transept measures 21 by 80 feet, the nave 70 by 20 feet. These measurements are obviously related to the major dimensions of 140 by 80.

The source for the dimensions 140 by 80 and the cruciform plan with apses in echelon is clearly not the plan of the abbey church of Saint Martin of Autun (Fig. 4). The church, constructed 589–600, was, according to Hubert[23] who cites Gregory of Tours, 20 meters wide and about 50 meters long. It was a basilica with three apses at the east end but no transept. The side apses, of Syrian

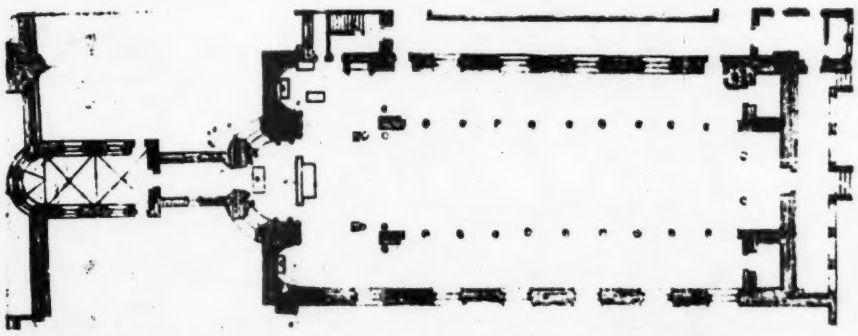

Fig. 4. Abbey of Saint Martin of Autun. Church plan of 1658. (Archives nationales)

type, do not project from the eastern wall. In the 34-centimeter foot used at Charlieu these dimensions indicate a church nearly 150 feet long by nearly 60 feet wide. In the 31.5-centimeter foot of Anzy-le-Duc the church would be nearly 160 feet long and nearly 64 feet wide.

The second church of Cluny, built *c.* 955–981, had, however, a cruciform plan with apses in echelon. It was 140 feet long and 80 feet across the transept (interior measurements) in 34-centimeter feet.[24] Cluny II could be the source for both the main dimensions and the idea of the cruciform plans with apses in echelon of Anzy-le-Duc and Charlieu.

Cluny II had a vaulted transept 14 feet wide, while Charlieu III had a vaulted transept 21 feet wide. Charlieu, being a later building, could have a bolder vaulting span. The nave of Cluny, originally wooden-roofed but vaulted apparently *c.* 1000 by Saint Odilo,[25] was 20 feet wide and 77 feet long. Charlieu's vaulted nave was 20 feet wide and 70 feet long. The designer of Charlieu seems to have wished to preserve in his plan the numerical relation in terms of 7, which occurs in Cluny II between the width of the transept and the length of the nave, in adding 7 feet to the transept width and subtracting 7 from the length of the nave.

Though both churches had major dimensions of 140 by 80 feet and both had apses in echelon, the plans of Cluny II and Charlieu III were far from identical. Cluny II had rectangular chambers between the sanctuary aisles and the transept apses. Charlieu's more closely knit design omitted the chambers, added the axial apsidiole of the earlier churches on the site, and incorporated the 7's in lengths and 4's in widths found in Cluny II in a singularly consistent way.

Anzy-le-Duc shares only certain major measurements with Charlieu in terms of numbers of feet—length, breadth, relationships of eastward extensions of the apses, and similarity in the lateral spacing of the apses. The axial apsidioles of both, as indicated above, are identical in terms of modern meters. Otherwise the dimensions of the two buildings are different and there is no repetition throughout Anzy-le-Duc of the relationship of 4 to 7 as at Charlieu. Mediaeval copies characteristically use only certain features of the model, not the complete design, as Richard Krautheimer has ably demonstrated in his article concerning mediaeval copies of the Holy Sepulchre.[26] It is Charlieu, not Anzy-le-Duc, which has the consistency in terms of the 4's in widths and 7's in lengths which points to an original design. And it would be normal for Charlieu, being a dependency of Cluny, to develop further the proportions 140 by 80 and the cruciform plan with apses in echelon inaugurated by the second Cluny church.

Finally it would be well to recapitulate the points made in the foregoing pages:

1. The axial apsidioles of the two churches, being of the same type and having the same dimensions as the ninth-century apsidiole at Charlieu, must have been inspired by Charlieu, not by the entirely different axial chapel of Saint Martin of Autun.

2. The crypt and water-table of Anzy-le-Duc have no connection with the problem of priority.

3. The style of the capitals and bases of the main door of Charlieu, more archaic than the style of the capitals and bases in the eastern parts of Anzy-le-Duc, can indicate an earlier date for the eastern parts of Charlieu.

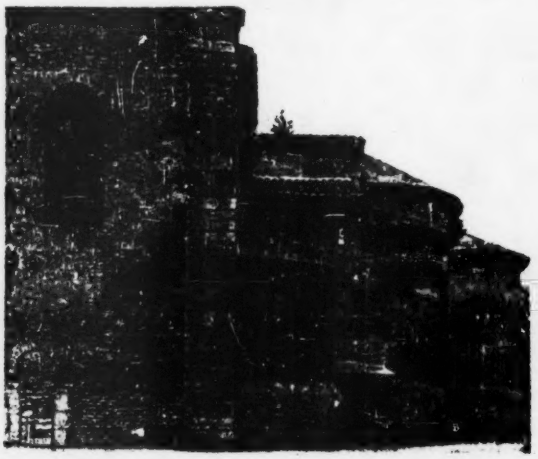

Fig. 5. Priory of Anzy-le-Duc. Eleventh-century church. Exterior of apses. (Author)

4. Architectural historians agree that the nave of Charlieu is earlier than the nave of Anzy-le-Duc.

5. The main dimensions (140 by 80) of the two churches are the same as those of Cluny II. It is Charlieu, being a Cluniac dependency, which would normally use these dimensions, not Anzy-le-Duc.

6. Charlieu's plan develops in a very consistent way the 4's in widths and the 7's in lengths occurring in Cluny II. Anzy-le-Duc's plan does not. Such consistency points to an original creation.

The conclusion can fairly be drawn that Charlieu was the originator of the design and that Anzy-le-Duc copied it in the incomplete way normal to the Middle Ages.

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1. "Ex toto etiam suo tempore constructus Carus-locus," from the life of Saint Odilo, Abbot of Cluny from 994 to 1048 A.D., recorded about the year 1050 by Jotsaldus, a monk of Souvigny. Published: Martin Marrier and André Duchesne, *Bibliotheca Cluniacensis* (Paris, 1614), col. 1820; Jean Mabillon, *Acta sanctorum ordinis S. Benedicti* (2nd ed.; Venice, 1733), VI, 603; Victor

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Mortet, *Recueil des textes relatifs à l'histoire de l'architecture* (Paris, 1911), p. 128. For a discussion of the text see: E. R. Sunderland, "The History and Architecture of the Church of Saint Fortunatus at Charlieu in Burgandy," *Art Bulletin*, XXI (1939), 64–67.

2. Jean-Baptiste Desevelinges, *Histoire de la ville de Charlieu* (Roanne and Lyon, 1856), p. 21.

3. Dalmace, Bishop of Compostela, was in France in 1095 attending the Council of Clermont and obtaining from Urban II a bull shifting the episcopal seat from Iria to Compostela and thus could have been in France the year before. See Lucien Paulot, *Urbain II* (Paris, 1903), pp. 307, 357.

4. Edouard Jeannez, "L'Eglise et le prieuré d'Anzy-le-Duc," in Félix Thiollier in collaboration with E. Brossard, J. Déchelette, V.

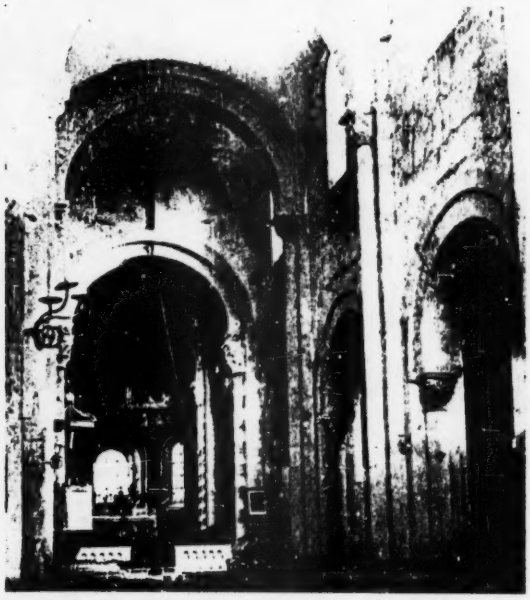

Fig. 6. Priory of Anzy-le-Duc. Eleventh-century church. Interior. (Author)

Durand, and E. Jeannez, *L'Art roman à Charlieu et en Brionnais* (Montbrison, 1892), p. 58. *Vita Hugonis*, Acta SS. Bolland. 1675, *apr.* II, 762[3e 761].) See J.-G. Bulliot, *Essai d'histoire sur l'abbaye de Saint-Martin d'Autun* (Autun, 1849), II, 371.

5. E. R. Sunderland, "Feet and Dates at Charlieu," *Journal of the Society of Architectural Historians*, XVI, 2 (May, 1957), 2–5.

6. Kenneth John Conant, "Mediaeval Academy Excavations at Cluny, VIII—Final Stages of the Project," *Speculum*, Vol. XXIX (1954), No. 1, 1–43.

7. E. R. Sunderland, "Feet and Dates," *op. cit.*, p. 5.

8. E. R. Sunderland, "The History and Architecture of Saint Fortunatus at Charlieu," *op. cit.*, p. 87, Fig. 31; E. R. Sunderland, *L'Histoire monumentale de l'abbaye de Charlieu* (Charlieu, 1953), p. 16.

9. Raymond Oursel et A.-M. Oursel, *Les églises romanes de l'Autunois et du Brionnais* (Mâcon: Protat Frères, 1956), p. 136.

10. E. R. Sunderland, "Charlieu: the first ambulatory colonnade?", *Journal of the Society of Architectural Historians*, XII, 1 (March, 1953), 3–6.

11. The difference in location of the points for measurement is probably of no significance. As Richard Krautheimer says (in his "Introduction to an 'Iconography of Mediaeval Architecture'," *Journal of the Warburg and Courtauld Institutes*, V [1942], 1–33) (p. 7)" . . . inexactness in reproducing the particular shape of a definite architectural form, in plan as well as in elevation, seems to be one of the outstanding elements in the relation of copy and original in mediaeval architecture." (p. 8) "It would seem as though a given shape were imitated not so much for its own sake as for something else it implied."

12. Joan Evans, *The Romanesque Architecture of the Order of Cluny* (Cambridge, 1938), p. 104: "A crypt is not a normal part of a cluniac church . . ."

13. E. R. Sunderland, "Charlieu: the first ambulatory colonnade?", *op. cit.*

14. Raymond Oursel, *op. cit.*, p. 144.

15. Puig y Cadafalch, *L'arquitectura romànica à Catalunya* (Barcelona, 1911), II, 408, Fig. 374.

16. *Ibid.*, III, 94, Fig. 65.

17. Other examples of the use of the First Romanesque arched corbel tables and pilaster strips on the interiors of apses occur at: Besanceuil (Saône-et-Loire) where they occur also on the outside (exterior published by Jean Virey, *Les églises romanes de l'ancien diocèse de Mâcon* [Mâcon: Protat Frères, 1935], p. 89); St. Lupecin (Jura) where they occur in at least one lateral apse (published by Puig y Cadafalch, *Geographia i els origens del primer art romànic* [Barcelona, 1930], Fig. 531); Commagny (Nièvre), early XII century, where the lower parts of the pilasters are replaced by half-columns with capitals and bases (published by M. Anfray, *L'architecture religieuse du Nivernais au moyen age* [Paris, 1951], Pl. XXI, 1.). Commagny belonged to Saint Martin of Autun.

18. E. R. Sunderland, "The History and Architecture of Saint Fortunatus at Charlieu," *op. cit.*, p. 84, Fig. 22.

19. The laying out of a church from the center of an apse does not seem to have been uncommon. The IX century church at Charlieu was so planned (See E. R. Sunderland, "Feet and Dates," *op. cit.*, Fig. 2).

20. The church is a little assymetrical as a result, it would seem, of building as much as possible of the new structure around the old one before destroying the old sanctuary. The builders were therefore not able to stretch a line through the length of the transept. The south aisle of the choir is a little wider than the north aisle; the south transept is a little longer than the north transept, its south wall is not parallel to the main axis of the church, and its west wall deviates, over its length, 10 centimeters to the west of the same wall of the north transept. It is to the north that the architect had the most space unencumbered by the old building (Fig. 3) and it is in this section that the transept is absolutely square and precisely at right angles to the nave.

21. The walls of both churches are close to 4 feet thick in their respective feet. A length of 80 feet in wall centers could, then, result from a copying of interior measures.

The question concerning the development of the layout system from that of wall centers to interior measures is far from resolved. It would seem that, from Carolingian times, when the wall center system was at least current if not universal, to the end of the High Romanesque period, there was a progression towards the system of interior measures, but at the present state of knowledge it cannot be stated that the system of wall centers had disappeared by the end of the High Romanesque. Charlieu and Anzy-le-Duc seem to have had a mixture of the two systems in the area of the transepts and apses. The naves, however, of the two buildings were laid out entirely in terms of interior measures.

For the reasons stated in note 11, the difference in starting point for the measure of 140 feet in the two churches does not seem important.

22. The dimensions of the axial apsidioles (270 x 310 cms.), if they were derived, as would seem likely, from the apsidiole of the original church at Charlieu, could have only a fortuitous relationship with either the 31-centimeter foot of Charlieu or the 31.5-centimeter foot of Anzy-le-Duc. The first church at Charlieu was laid out, in terms of wall centers, with a foot of 29.61 centimeters (See E. R. Sunderland, "Feet and Dates," *op. cit.*).

23. Jean Hubert, *L'art pré-roman* (Paris, 1938), p. 38.

24. Kenneth John Conant, "Final Stages," *op. cit.*, Plate V.

25. *Ibid.*, p. 6.

26. Richard Krautheimer, *op. cit.*

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THE ROMANESQUE REVIVAL IN PITTSBURGH

JAMES D. VAN TRUMP

IN JANUARY, 1884, the plans submitted by H. H. Richardson for the Allegheny County Buildings [1] were, with the work of three other competitors,[2] placed on exhibition in the Old Welsh Church at Pittsburgh.[3] Architecturally, it was a historic moment for the city.[4] Richardson himself considered the County Buildings as the great opportunity of his life, and in the Court House and Jail (Fig. 1), as well as the Field Store at Chicago (1885–87), he did the most important and influential work of his career.

In 1911, Montgomery Schuyler wrote, "one is inclined to say that Pittsburgh is the American city which more than any other, more even than Boston, bears traces of the Romanesque Revival," [5] and the same might still be said today.

The Romanesque of Richardson was only a re-direction, a tremendously personal amplification of a style trend that had been slowly developing during the 19th century and Pittsburgh already had its fair share of buildings constructed during this earlier phase of the Revival. Carroll L. V. Meeks has spoken of a certain pragmatism, an earthiness about this round-arched style [6] which must have appealed to Pittsburghers and which may have laid the ground work for their later whole-hearted acceptance of the Richardsonian formula. However that may be, it is amazing how few of these buildings in Pittsburgh have survived. In contrast to the magnificent solidity of Richardson's work, they do look a little thin; in old photographs and engravings they seem to have the canvas insubstantiality of stage scenery. Probably the most elaborate example of the type in Pittsburgh was the Fourth Avenue Baptist Church (dedicated 1876, demolished 1909), designed by David S. Gendell of Philadelphia, which had a large wheel window and two towers on the main façade.[7] St. Michael's Roman Catholic Church (1861) (Fig. 2),[8] which is still extant, is a brick vernacular version of the South German "Rundbogenstil." This church which is magnificently situated above one of the city's river valleys has a very interesting tower with four quasi-Baroque consoles at the belfry stage.

In May, 1882, the second Allegheny County Court House, which reared its solid Doric portico on Grant's Hill overlooking the central part of the city, was in large part destroyed by fire.[9] It was decided to erect a new Court House and Jail.[10] The Commissioners decided to ask five selected architects to prepare plans, the studies to be submitted to the Board of Commissioners by 1 January 1884. Richardson was the last architect chosen; on 28 September 1883 he was informed of the Board's decision and he set to work at once.[11]

Richardson must undoubtedly have been impressed by the rough vigor and the masculine vitality of the strident industrial city. And he was a man to match the city.[12]

On 31 January 1884 he was selected as architect of the proposed buildings. On 1 July 1884 the plans, with some revisions from the original competition designs,[13] were submitted to the Commissioners and on 1 September the contract for the erection of the Court House and Jail was awarded to Norcross Brothers of Worcester, Massachusetts, for the sum of $2,243,624.50. The construction proceeded without any delay and on 10 March 1888 the capstone of the Court House tower was laid. The Jail had already been finished on the stipulated date. The buildings were dedicated on 24 September 1888.

Although Richardson had desired intensely to see his chef d'oeuvre finished ("Let me have time to finish Pittsburgh and I should be content without another day"), he died on 27 April 1886. The County Commissioners had assured him personally that in the event of his death the work should be handed over to his executors. The promise was kept and the construction of the buildings was carried forward under the supervision of Shepley, Rutan & Coolidge, men who were in his office and who formed themselves into a firm with the primary purpose of taking care of Richardson's unfinished work.

It is now difficult to visualize how enormously effective the structures must have been with their clean granite masses towering above the low-lying city.

The Court House consists of a large hollow rectangle 301 by 209 feet, having a basement and four stories on each side with an interior court 145 by 70 feet. The plan is essentially the same on all four floors of the building; the court rooms and offices are grouped around the out-

JAMES D. VAN TRUMP *has become the architectural biographer of his native Pittsburgh.*

side of the structure connected by interior corridors which face the court yard. All the exterior walls are constructed of pinkish-gray Milford granite, partly rock-face and partly cut, laid on in alternate wide and narrow bands of masonry, a treatment which is probably less effective than the single broad courses of the Jail walls. The roof, which is rather steeply pitched, is covered with square terracotta red tiles which must have at one time provided a handsome contrast to the pale tone of the walls. The building

Fig. 1. Pittsburgh. Court house and Jail. H. H. Richardson, 1884–88. (Frick Fine Arts Dept., Univ. of Pittsburgh)

was cleaned during the early 1930's and is now (1957) being cleaned again.

Although the style of the building is generally Southern French Romanesque, it is very evident here that the personal manner of Richardson, even at its most archaeological, shows borrowings from many other sources, a fact which Hitchcock has already pointed out.[14] The general form of the Court House, obviously a re-working of the Albany State House scheme, is early French Renaissance. In this instance one may note the application of one revived style to another building type: it is as if a Romanesque skin had been pulled over the Renaissance body. However, even that skin is not purely Romanesque and it is spotted and colored with elements from other periods, notably the three cavernous Syrian arches of the main entrance[15] and the dormers which are late French Gothic in form. The detailing is archaeologically correct, but even here there is a Byzantine quality subtly combined with the Romanesque, which is apparent in the sculptured capitals of the windows and entrance archways. The Bridge of Sighs which connects the Court House and the Jail was doubtless inspired in function by its Venetian namesake, although in form it favors the Rialto.

The great triple windows of the corner pavilions owe nothing to historical precedent; they are purely late 19th-century features, large areas of glass designed to give as much light as possible to modern court rooms. The building is eclectic in a very wide sense and not limited to the narrow confines of one revived style.

The great tower whose clean, boldly-molded flanks rise straight from the entrance façade is an example of the persistence of the Spanish Romanesque element in Richardson's personal style. It is, in essence, a tremendous elongation of the Trinity tower and is the last of his works to show the influence of the Spanish lantern churches. The four angle turrets of the Pittsburgh tower with the ornamental bull's eyes reminiscent of those of the Collegiata of Toro[16] are particularly Spanish. However, the elaborate belfry arcades, which recall those of the Albany City Hall, are French.

The inner courtyard is almost completely free from Romanesque historicisms and its fenestration rivals that of the Field Building.[17]

The best feature of the interior[18] is the main staircase which rises from the basement to the second floor in short broad flights, not too elaborately interwoven, and supported and adorned by massive arches of cut Bedford limestone.[19] Again, except for some carved capitals on the low pillars supporting the arches, the ornament is restrained and the simple voussoirs give a quality of clean simplicity to the design.

Of the two Pittsburgh buildings, the Jail seems now to be in the greater aesthetic favor possibly because, aside from its generally Romantic outline and mass, it has almost no stylistic detailing and because it expresses so eminently its function. It is very abundantly and superlatively a jail. It is also probably the most masculine, rugged and solid of Richardson's designs. The massive walls of the jail yard with their great blocks of Milford granite recall Mycenaean masonry and they appeal strongly to that nostalgia for the gigantic and the primitive which is so much a part of the modern sensibility.

The Jail as designed by Richardson and finished in 1886, was much smaller than the present structure.[20] The Pittsburgh architect F. J. Osterling designed certain additions to this building *circa* 1903–1905, but there were no extensive changes made in Richardson's work; the new work was merely an amplification of the original scheme.[21]

The details of the building do not suffer by comparison with the ensemble. The ranges of granite along the principal façade are broken by few openings; chief among them are the main entrance, a low arch with huge eight-foot voussoirs (reminiscent of portals that Richardson had seen during his Spanish journey in 1882), and the windows of the warden's house. As Hitchcock suggests,[22] the overall silhouette of the building recalls the fortified towns which Richardson had seen in southern France, especially the square tower near the main door which reminds one of those of the Valentré Bridge at Cahors. The octagonal dome over the crossing of the cell block wings seems to have been inspired not so much by the cupolas of southern France as by those of the Lombard or Rhenish Romanesque. One feature of the composition that is unmistakeably 19th-century is the tall chimney in the jail yard, a splendidly proportioned column of granite with a suggestion of medieval corbelling at the top.

The plan of the interior of the Jail proper with its four wings (originally three) radiating from the central space under the octagonal dome has obviously been inspired by the plan of the Syrian church of St. Simeon Stylites (A.D. 450–470) which was illustrated in de Vogüé's book *La Syrie Centrale*,[23] a copy of which was in Richardson's library. One is also reminded of the Octagon of Ely Cathedral and the plan of James Wyatt's Fonthill Abbey, but it is very doubtful if these buildings influenced Richardson in any way. The interiors of the wings themselves are high gaunt halls which rise some sixty feet from floor to roof and which are lighted in dramatic fashion by tall round-arched windows. Five tiers of cell-blocks occupy the centre of each wing. The four wings converge like cathedral naves on the great echoing void under the dome.

Pittsburgh also possesses a work of Richardson's later period, the small Emmanuel Episcopal Church (Fig. 3). For this building the architect made two sets of plans.[24] In studying the two versions one notices the trend toward simplification of design and the gradual sloughing off of the Romanesque skin. The church as built is direct, simple and forthright; the identification with any historical style is very slight.

No records exist in Pittsburgh which would indicate when Richardson was first approached in regard to the church, but Hitchcock states that the commission was given to the architect in August, 1883.[25] In the late spring of 1884, a meeting was held by the Vestry of Emmanuel Church[26] at which the new plans were discussed, but it is not known when the plans had arrived. On 8 July 1884 the Vestry finally decided that the building would be too expensive to erect and the building committee was asked

Fig. 2. Pittsburgh, St. Michael's Church, 1861. (Frick Fine Arts Dept., Univ. of Pittsburgh)

to procure from Richardson plans for a less costly structure.[27] On 20 February 1885 the new set of plans was exhibited to the Vestry; they were accepted and construction was begun. The church was finished early in 1886 and it was dedicated on 7 March of that year.[28]

Aside from its intrinsic merit as a design, the first Emmanuel project is interesting because it belongs roughly to the same period as the first studies for the Court House. Although no dimensions are given on the plans, the building would have been approximately the size of the present church. It was to have been executed in stone instead of brick—the material of the actual structure. Here we have a later development of the Trinity theme with the central lantern and its four brief subsidiary arms constituting the body of the church and anticipating the huge central

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tower of Pittsburgh's Shadyside Presbyterian Church (1889–90) by Shepley, Rutan & Coolidge.

The present church is a simple rectangle covered by a huge roof whose sharply sloping exterior descends to relatively low side walls, the battered bases of which continue the slope of the roof. The entrance façade is a high plain gable, completely unadorned save for the patterning of the brickwork, especially the brick banding of the voussoirs of the loggia arches and the three windows above. The semi-circular apse continues the line of the exterior walls at the other end of the building. There is no carved ornament anywhere; the building materials themselves provide such simple decorative effects as are evident. All the elements of the composition express in the simplest terms the function of the building and its monumental simplicity gives it a curious timeless, as well as a style-less quality.

The interior is quite as effective as the exterior. Dominant here is the great roof with its exposed rafters and unadorned beams. This structural wood work appeals

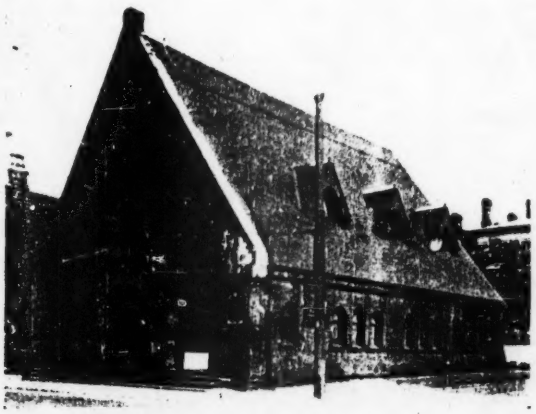

Fig. 3. Pittsburgh. Emmanuel Church. H. H. Richardson, 1884–86.

especially to the modern sense of architectural function and one has the sense of walking under the overturned hull of a wooden ship. Against the blackened beams of the apse the white marble and mosaic work of the Cosmatiesque reredos and altar stand out with an almost startling vividness.[29] Banks of organ pipes separate the chancel from the rest of the church, but these were not structural elements designed by Richardson. The stained glass of the small side windows is properly "Romanesque" in design and pleasing in color; above the gallery (constructed over the entrance loggia) the larger triplet of lights is, again, properly filled with glass by Tiffany,[30] which has the glimmer and sheen of peacock feathers.

With Emmanuel the tale of the Richardson works in Pittsburgh is finished but the "school" pieces remain to be discussed. In 1887, when the walls of Emmanuel had begun to show some structural faults, Frank E. Alden was called in to give an opinion as to the soundness of the structure.[31] Alden (1859–1908), who was destined to become very important in the architectural life of Pittsburgh, had come to the city in 1885 as supervising architect of the Court House.[32] To hold such a position he must have been rather especially favored by Richardson. He had also worked on the Albany State House. Like many another New England architect who looked westward during the '80's and '90's, he must have seen that architectural opportunities abounded in Pittsburgh. As early as 1886 he had set up his own office in the city[33] and in 1887, together with A. W. Longfellow (who had also studied under Richardson) and A. B. Harlow (who had been in the office of McKim, Mead & White), he formed the firm of Longfellow, Alden & Harlow, which had offices in both Boston and Pittsburgh.[34] Alden managed the Pittsburgh office at first but he was later joined by Harlow. Longfellow remained in Boston where he practised under his own name after the firm split up in 1896. Alden and Harlow re-formed the firm in Pittsburgh and they practised under that name until 1927. By the middle '90's, however, the firm had almost ceased to use the Romanesque manner.

With Alden the Apostolic Succession from Richardson is as clear, the "Laying on of hands" almost as marked as in the case of Shepley, Rutan, & Coolidge. He was peculiarly fitted to carry on the Richardsonian manner, although not, unfortunately, the Richardsonian matter. Nevertheless, the firm of Longfellow, Alden & Harlow was responsible for some quite accomplished Romanesque work in Pittsburgh, the best of which probably is the façade of the Duquesne Club (1887),[35] a direct and simple, if rather bland, exercise in Richardson's less archaeological manner. Here the suppression of any too overt medievalisms heralds the antiseptic good taste of the new classicism which was so soon to triumph. Also belonging to 1887 is the fourth East Liberty Presbyterian[36] Church (Fig. 4) (1887–88, demolished 1931) which was basilican in form with a tower vaguely reminiscent of that of the Albany City Hall (a tower which had numerous architectural progeny). Among the firm's Romanesque houses may be singled out that of A. E. W. Painter[37] (built 1888–89 and still extant but much fallen in estate) which was once one of the chief ornaments of the wealthy North Side. Roughly contemporary with the East Liberty Church, it quite lacks its simplicity of treatment and also some of the refinement of similar work by McKim, Mead & White. Although there is something parvenu and a little gauche in its elaboration of detail, the house is soundly designed, echoing the broad Romantic asymmetry of Richardson's Hay House in Washington. One of the firm's last Romanesque works in Pittsburgh was the old Bell Telephone

Company Building (1892)[38] (Fig. 5) on Seventh Avenue which was influenced in the treatment of its façade by Richardson's John H. Pray Building (1886) in Boston. In 1891, Longfellow, Alden & Harlow won the competition for the Pittsburgh Carnegie Library and Music Hall with an Italianate design in the manner of the Boston Public Library and henceforth their buildings were mostly in the classical manner.

The direct influence from Richardson can probably be seen in its purest form in the work of Shepley, Rutan & Coolidge, although, aside from finishing the Court House, the firm did surprisingly little work in Pittsburgh, possibly because they made no attempt to establish a local office in the city, as they later did in Chicago. The Shadyside Presbyterian Church (1889–90)[39] (Fig. 6) with its great square lantern tower which has something of the vigor and power of Richardson's own work, set the pattern for several other Pittsburgh churches of the auditorium type.[40] Scattered about the city's hills and valleys, their domes of varied silhouette rise like heavy bubbles, giving a peculiarly fantastic quality to the urban landscape. The firm was also responsible for the Old Masonic Hall (1888, no longer extant) on Fifth Avenue which was a six-story building in brown stone.[41] The façade of this building, which would have been worthy of Richardson himself, consisted of a row of shop windows on the first floor balanced on the top story by an open arcade, while in the central part of the composition appear the tall arched windows which were such a feature of the Cincinnati Chamber of Commerce Building. The Masonic Hall was highly regarded by contemporary Pittsburghers and was the cause of almost as much favorable comment as the Court House. The Henry W. Oliver house on Ridge Avenue (1893),[42] a re-working of an earlier house, is in the firm's later classical manner, but it seems to be haunted by the ghost of the Romanesque in some of its ornamental details.

There is in the city a great deal of Richardsonian school work of varying merit. Mention should be made of two Romanesque competition designs, one for the Allegheny Carnegie Library in 1887 and the other for the Pittsburgh Carnegie Library in 1891 by William Halsey Wood (1855–1897) who handled the Richardsonian manner with some originality, although not often with happy results. Neither of these designs was accepted, but the Allegheny project[43] is a highly interesting building, its Richardsonian exterior rather freely treated, with a flowing interior plan based on circular motifs—altogether a much better piece of work than the building actually erected, a heavy-handed "Romanesque" exercise by Smithmeyer & Peltz who had recently won the competition for the Library of Congress in Washington. Among the many Pittsburgh commercial buildings in the style, one might single out the Grogan Building (Fig. 7) by Struthers and Hannah (*c.* 1890) and the Times Building, now the Magee Building, (1891)[44] by F. J. Osterling, both with stone façades. The Grogan Building is remarkably uncluttered by archaeological detail and its fenestration is particularly effective, while the Magee Building with its more pedestrian use of Richardsonian ornament exhibits a plan in-

FIG. 4. Pittsburgh. East Liberty Presbyterian Church. Longfellow, Alden & Harlow, 1887–88. (Frick Fine Arts Dept., Univ. of Pittsburgh)

FIG. 5. Pittsburgh. Bell Telephone Company Building. Longfellow, Alden & Harlow, 1891. (Frick Fine Arts Dept., Univ. of Pittsburgh)

geniously if not quite effectively adapted to its narrow site.

For a short time the field of domestic architecture in Pittsburgh was particularly dominated by the Romanesque. Good business men and their wives who had not yet learned to yearn for Georgian town houses or Cinquecento palazzi agreed to live in pseudo-medieval ruggedness. Along the rather naked avenues of the city's newer quarters—such as Fifth Avenue in the East End—marched the rock-faced and turretted procession of Richardsonian chateaux, much more appropriately the habitations of the princes and barons of the steel and coal industries than their later suavely classical dwellings. The years of these rocky castles were as brief as their glory, however, and most of them have now vanished. There is also a particularly interesting group of brick houses which seems to derive in large part from Emmanuel Church, especially in their simple massing and the use of unadorned and patterned brick surfaces. As these houses were usually of a smaller, more intimate character, many of them have survived. There is an essentially anonymous, uncomplicated quality about them; they were for the most part not considered "important" architecture and they are, for that reason, more difficult to identify as to architect and date. One of the best examples of the type is the McClelland-Sutton house (1888) at Fifth and Wilkins Avenues in the East End, designed by Longfellow, Alden & Harlow. Its long low outline recalls that of Richardson's Glessner house in Chicago (1885–87), but its severe patterned brick walls and molded surfaces are very close to the exterior treatment of Emmanuel. The former Stewart house (*c.* 1890)[45] by George Orth, at Lincoln and Allegheny Avenues in the North Side, is typical of the same school in its use of patterned brick surfaces, but its complex Romantic silhouette owes more to McKim, Mead & White's Tiffany House than to Richardson. These buildings with several others scattered about the city are certainly the most charming survivals of the Romanesque Revival in Pittsburgh.

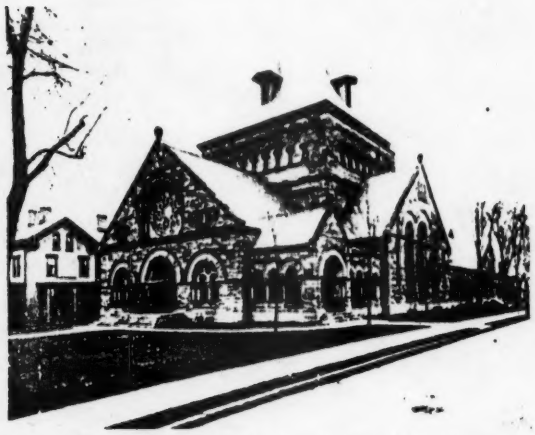

Fig. 6. Pittsburgh. Shadyside Presbyterian Church. Shepley, Rutan & Coolidge, 1889–90.

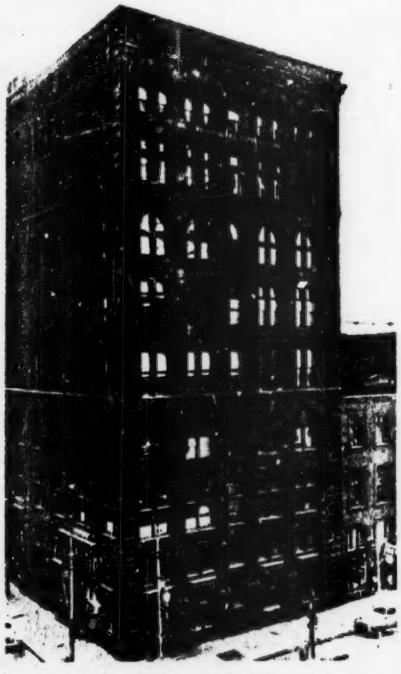

Fig. 7. Pittsburgh. Grogan Building. Struthers & Hannah, *c.* 1890. (Frick Fine Arts Dept., Univ. of Pittsburgh)

After the turn of the century there was evident in Pittsburgh, as in other parts of the country, another and later variant of the Romanesque which owed little to Richardson. A rather dry, bland, tasteful, very archaeological style, it was inspired mostly by the Rhenish and Italian Romanesque. St. Augustine's R. C. Church in Pittsburgh (1903) by Rutan & Russell[46] is a typical example (Fig. 8). It is a brick Edwardian version of a Rhineland church complete with octagonal dome and two towers. Although stylistically rather "pure" it is tame and completely lacking in the vigor and spirit of Richardson's work.

Although much has been destroyed, much still remains in Pittsburgh to show that the Richardsonian Romanesque was, of all the style phases of the Eclectic period, the most important in the architectural history of this city. The Revival in Western Pennsylvania died out in a rash of bulbous court houses and swollen school buildings or lingered thinly in the carved detail of suburban parlors. There still exists in Pittsburgh a monument which expresses most perfectly this last phase of the style—the First Central Presbyterian Church of the North Side (1892).[47] This utterly fantastic building with its tumid stumpy

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belfry, its swooping roof lines and flighty chimneys is a caricature, a *reductio ad absurdum* of the Richardsonian manner. Nothing so Romantically ridiculous was to be seen again in the city until some of the "Mother Goose" architecture of the 1920's. In this church the twin smaller towers of the Court House yard appear as attenuated chimneys—a last dying echo of the architect's powerful design. These last minor examples of his influence serve, however, merely to emphasize the magnitude of his achievement. As long as the Court House and Jail remain, Pittsburgh will still be the chief repository of those monuments which attest most strongly to Richardson's gifts.

FIG. 8. Pittsburgh. St. Augustine's Church. Rutan & Russell. 1903.

1. This set consisting of a perspective wash drawing, plans, elevations and sections was reproduced from the originals and bound—*A Study of the Proposed County Buildings, by H. H. Richardson* (Boston, 1883).

2. The others were John Ord of Philadelphia, E. E. Meyers of Detroit, and W. W. Boyington of Chicago. Andrew Peebles of Pittsburgh had been asked to compete, but he was disqualified because his plans were not ready at the specified time. Richardson came to Pittsburgh to explain his plans to the County Commissioners—see the Pittsburgh *Chronicle Telegraph*, Wednesday, 2 January 1884, p. 2, and the Pittsburgh *Times*, Thursday, 3 January 1884.

3. *Pittsburgh and Allegheny Illustrated Review* (Pittsburgh, 1889), p. 112.

4. For some years after they were built the County Buildings called forth local journalistic comment that was laudatory almost to excess. One article in the Pittsburgh *Bulletin*, XVI, No. 18 (3 March 1888) 3, is typical: the editor felt that these structures should cause a complete reform in Pittsburgh architecture.

5. Montgomery Schuyler, "The Building of Pittsburgh," *The Architectural Record*, XXX, No. 3 (September, 1911), 226.

6. C.L.V. Meeks, "Romanesque Before Richardson in the United States," *The Art Bulletin*, XXV, No. 1 (March, 1953), 32.

7. *The First Baptist Church of Pittsburgh* (Pittsburgh, 1923), pp. 11–13.

8. *St. Michael's, 1848–1948* (Pittsburgh, 1948), p. 13.

9. Charles M. Stotz, *Early Architecture in Western Pennsylvania* (New York, 1936), p. 253.

10. Most of the historical material in this and the following paragraphs has been taken from the *Official Report of the Dedicatory Exercises Held at the New Court House—September 24, 1888* (Pittsburgh, 1888) which contains a history of the erection of the building, pp. 16–54.

11. Anyone who writes on Richardson must acknowledge his debt to Henry-Russell Hitchcock whose *The Architecture of H. H. Richardson and His Times* (New York, 1936) is indispensable. Mrs. Mariana Van Rensselaer's *Henry Hobson Richardson and His Works* (Boston and New York, 1888) contains much biographical material on Richardson. Both works contain considerable descriptive and critical material on the Court House.

12. Lewis Mumford, *The Brown Decades* (New York, 1931), pp. 115–116.

13. There is a complete set of these plans, all numbered and signed by Richardson himself, in the files of the Bureau of Records, County Works Department at Pittsburgh (Nos. 750-816). There is also a set among the Richardson papers deposited at the Houghton Library of Harvard University.

14. *Op. cit.*, pp. 180–185.

15. These portals are no longer so effective as they were when one entered them at street level. See the photographs in Montgomery Schuyler "The Romanesque Revival in America," *The Architectural Record*, I, No. 2 (October–December, 1891) 156, and also in *The Inland Architect*, XIII, No. 5 (May, 1889). In 1912, when Grant Street was lowered sixteen feet, the firm of Alden and Harlow designed a staircase which led to these doors—see the *Pittsburgh Architectural Club Year Book*, XI (1914), 79. In 1928, when Grant Street was widened, the stairway was removed and the doorways elongated downward, necessitating a completely different entrance treatment (after designs by Stanley Roush) which is not nearly so successful as the original.

16. Carl Kenneth Hersey, *The Salamantine Lanterns* (Cambridge, 1937), p. 220.

17. Incredible as it may seem, it was proposed at one time to erect a skyscraper in this courtyard, using the Court House tower as a sort of subsidiary turret. The design by Palmer and Hornbostel for this project was published in *The Inland Architect*, 49, No. 5 (May, 1907) and *The American Architect*, 91, pt. 2, No. 1636 (4 May 1907), 31.

18. There is a contemporary article on the decoration of the Court House in the Pittsburgh *Bulletin*, XVII, No. 22 (29 September 1888), 14.

19. *County Buildings for Allegheny County, Pa., Specifications for the Court House* (1884), p. 14.

20. The original plans for the County Jail are no longer to be found in the files of the Allegheny County Works Department. However, a set of plans, elevations and sections for the original building are among the Richardson papers in the Houghton Library. In the files of the County Architect at Pittsburgh there is a complete set of plans of the Jail as it now stands, compiled from W. P. A. surveys of the middle 1930's and possibly from the old Richardson and Osterling plans.

21. G. M. Hopkins Company, *Real Estate Plat Book of the City of Pittsburgh* (Philadelphia, 1898–1903), IIIa (1903), Pl. 13. The plans for these alterations are apparently no longer extant. During the same period, Osterling proposed a scheme to increase space in the Court House by jacking up the roof and placing three additional stories under it. This project called forth very unfavorable editorial comment in *The American Architect*, 86, No. 1504 (22 October 1904), 25. Osterling was also responsible for the Romanesque Allegheny County Mortuary (1908) the plan for which is pre-

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served in the files of the Allegheny County Department of Works.

22. *Op. cit.*, p. 259.

23. Pls. 139–148. See Howard C. Butler, *Early Churches in Syria* (Princeton, 1929), pp. 97–99. Richardson's original plan for the Jail was also published in Van Rensselaer, p. 93.

24. There is a full set of drawings for the first project and two sheets of studies for the second among the Richardson papers in the Houghton Library. The working drawings for the church have disappeared.

25. *Op. cit.*, p. 255.

26. *Minute Books of the Vestry of Emmanuel Church*, I, 217.

27. *Ibid.*, pp. 218–219.

28. The Pittsburgh *Chronicle Telegraph*, Saturday, 6 March 1886, p. 5.

29. The Thaw Memorial Reredos designed and executed by the firm of Lake and Green, Pittsburgh. See the *Catalogue of the First Annual Exhibition of the Pittsburgh Chapter, American Institute of Architects, 2–31 May 1898* (Pittsburgh, 1898), p. 71.

30. The Pittsburgh *Bulletin*, XXI, No. 7 (28 June 1890), 12.

31. *Minute Books of the Vestry of Emmanuel Church*, I, 237–238. Since Alden had been consulted, it is highly probable that he may have designed the parish house of the church which was constructed in 1887–1888.

32. Obituary notice in the Pittsburgh *Gazette Times*, Thursday, 17 September 1908, p. 8.

33. *The Pittsburgh and Allegheny Directory*, 1886-87, p. 91.

34. *Ibid.*, 1888, p. 611. Longfellow (1851–1934) and Harlow (1857–1927) had already formed the firm of Longfellow and Harlow which is listed in the Boston Directory for 1886 and 1887. The firm of Longfellow, Alden & Harlow is listed in the Boston Directory for 1888. See also the obituary notice of A. W. Longfellow in the *New York Times*, 17 February 1934 p. 15. There is a brief account of the early Pittsburgh work of the firm in the *Pittsburgh and Allegheny Illustrated Review* (Pittsburgh, 1889), p. 79. The writer has in preparation a monograph on the history of the firm from its beginning until it was disbanded in 1942.

35. There is a contemporary description of this building in the Pittsburgh *Bulletin*, XVII, No. 4 (26 May 1888), 7. It is also illustrated in *The Architectural Record*, I, No. 1 (July–September, 1891), 138.

36. The Pittsburgh *Bulletin*, XVI, No. 2 (12 November 1887), 7, and *The East Liberty Presbyterian Church* (Pittsburgh, 1935), p. 9.

37. *The Inland Architect*, 17, No. 4 (May, 1891).

38. Information from the files of the Bell Telephone Company.

39. *Twenty-Five Years of the Shadyside Presbyterian Church* (Pittsburgh, 1892), pp. 38–39. See also Montgomery Schuyler "The Romanesque Revival in America," *The Architectural Record*, I, No. 2 (October–December, 1891), 185–189.

40. Montgomery Schuyler "The Building of Pittsburgh," pp. 252 ff. Christ Methodist Episcopal Church (Weary and Kramer, 1894), the First United Presbyterian Church (Thomas Boyd, 1898) and the Third United Presbyterian Church (T. C. Chandler, 1907) are the more important churches of this type in Pittsburgh.

41. There are contemporary descriptions of the building in the Pittsburgh *Post*, Wednesday, 12 September 1888, p. 3, and Pittsburgh *Bulletin*, XVIII, No. 12 (19 January 1889), 3.

42. The Pittsburgh *Bulletin-Index*, 109, No. 3 (3 December 1936), 4.

43. *The American Architect*, 21, No. 592 (30 April 1887). See also the writer's article on Wood and his work: "Pittsburgh's Church of the Ascension," *The Charette*, XXXVI, No. 6 (June, 1956), 15.

44. *The Inland Architect*, 18, No. 5 (December, 1891), 68.

45. *The Pittsburgh Bulletin*, XXXI, No. 22 (5 October 1895).

46. Montgomery Schuyler "The Building of Pittsburgh," p. 248. Frank E. Rutan (1863–1911) and Frederick A. Russell (1861–1921) had both been pupils of Richardson.

47. For information on this building I am indebted to Barry Hannegan of the University of Pittsburgh who has made a special study of this church.

AMERICAN NOTES

CHARLES E. PETERSON, *Editor*

421 Walnut Street, Philadelphia 6.

THE HISTORIC AMERICAN BUILDINGS SURVEY CONTINUED

To reactivate HABS on a wide scale, the National Park Service plans to devote a substantial sum from its appropriation for the fiscal year 1958.

The Survey is an open-end archive to which any person or agency can contribute but accessions from sources outside of the Service have been very limited. Since Pearl Harbor no federal money has been available for the purpose. For the present funds, the successful "MISSION 66" program initiated by Park Service Director Conrad L. Wirth and the faithful year-by-year campaigning of Thomas C. Vint, Chief of Design and Construction, and Chief Architect Dick Sutton are to be thanked.

The present plan is to first renew the Survey in the eastern part of the country and later extend activities to the West. The work will be administered from the bureau headquarters in Washington and from the Eastern Office, Division of Design and Construction in Philadelphia.

The original proposal for the Survey was written one Sunday afternoon nearly twenty-four years ago. Your editor still has the original manuscript in pencil. Because it has never before been published we are including it at full length below:

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF NATIONAL PARKS, BUILDINGS, AND RESERVATIONS
EASTERN DIVISION, BRANCH OF PLANS AND DESIGN
WASHINGTON

OFFICE OF CHIEF OF DIVISION

November 13, 1933

Memorandum for The Director:

SUBJECT: *The Relief Employment Under the Civil Works Administration of a Substantial Number of the Architectural Profession in a Program Recording Interesting and Significant Specimens of American Architecture.*

Advantages of the Plan

Herewith is outlined a plan for you to consider as a submission to the Civil Works Administration through which one thousand or more men of architectural training could be employed for two or more months. The chief virtues of this plan as a practical relief project are that the men could go to work almost at once, and that a very minimum of equipment, supplies, and overhead is necessary. From the cultural standpoint an enormous contribution to the history and aesthetics of American life could be made. Relief would be offered to one of the professions that has suffered most con-

spicuously during the years of the economic depression. Several unemployment projects of similar nature have been successfully carried out on a small scale locally.

The Need for Recording Historic Buildings

The plan I propose is to enlist a qualified group of architects and draftsmen to study, measure and draw up the plans, elevations and details of the important antique buildings of the United States. Our architectural heritage of buildings from the last four centuries diminishes daily at an alarming rate. The ravages of fire and the natural elements together with the demolition and alterations caused by real estate "improvements" form an inexorable tide of destruction destined to wipe out the great majority of the buildings which knew the beginning and first flourish of the nation. The comparatively few structures which can be saved by extraordinary effort and presented as exhibition houses and museums or altered and used for residences or minor commercial uses comprise only a minor percentage of the interesting and important architectural specimens which remain from the old days. It is the responsibility of the American people that if the great number of our antique buildings must disappear through economic causes, they should not pass into unrecorded oblivion.

Styles

In order to lay out a comprehensive program which will include a judicious selection of period, type and locality, I suggest that a general canvass of the structures erected between the earliest times and (say) 1860 be made. This would include the best examples of the succeeding styles followed on the Atlantic Seaboard and the adjoining States, roughly grouped as "Jacobean," "Georgian," "Early Republic" and "Greek Revival." It would also include the remnants of Spanish Colonial culture scattered from Saint Augustine to Monterey. Special attention would be given to the early work of New Orleans and of Santa Fe.

Neglected Subjects

An important though largely untouched field for exact architectural recording is the Indian territory of the Southwest. Exact records should be made of such communal constructions as the Taos and Acoma pueblos, and the Zuni villages farther West where mutations are fast encroaching upon the flavor of the native aboriginal style. Recording of some of the highly perishable prehistoric remains such as the Pueblo Bonita (New Mexico) should be included. If it could be worked out, the Russian remains of Alaska should be included in this program.

The list of building types should be almost a complete resume of the builders' art. It should include public buildings, churches, residences, bridges, forts, barns, mills, shops, rural outbuildings, and any other kind of structure of which there are good specimens extant. The lists should be made up from the standpoint of academic interest rather than of commercial uses. The largest part of individual effort spent so far in measuring antique buildings and recording them seems to have been given with an eye to adapting historic styles to modern commercial architectural practice. Much good has certainly resulted from this motive, though whole classes of structures have been neglected. The Seventeenth Century American house, because it is not well adapted to modern use, has been frequently passed aside. Bridge designers, because they have not sensed the possibility of employing the distinct early American style, have neglected a subject of absorbing interest.

Other structures which would not engage the especial interest of an architectural connoisseur are the great number of plain structures which by fate or accident are identified with historic events. The birthplaces of Presidents, statesmen, generals, inventors, and other important men belong to this class. Old mining settlements, such as Columbia in the Sierra Nevada or Central City in the Colorado highlands are the vanishing scenery of a colorful phase of our last century. For the edification of future generations, why not make a complete record of one or more of these decomposing cities? The hewn log cabins of the early pioneers form another class of buildings which have been necessarily neglected as a subject for study by commercial architects.

Excavation of Ruins

If proper archaeological supervision can be secured, it is conceivable that certain ruins might be excavated by common labor under this same general program. Projects could include such a wide variety of locality as Henricopolis, the Seventeenth Century settlement on the James River of Virginia; the Indian Mounds of the Middle West, and the prehistoric ruins of the Southwest.

Bibliography of Previous Work

Due recognition would be made of the material of this nature which has been gathered in the past by individuals and public organizations. Many interesting buildings have been measured and photographed and quite a few of these have been published. It would be the duty of the executive organization of this program to see that effort is not wasted by duplicating work which is already available. While the efforts of the past have not been coordinated nationally, it should not require a great amount of time to ascertain through existing architectural and historical organizations what has been done. The actual employment program and the beginning of the program could be well under way during the reconnaissance of previous work.

The Executive Organization

It is my belief that the executive functions of this suggested program could best be carried on by the Branch of Plans and Design of the Office of National Parks, Buildings and Reservations. That organization is a technical branch of a nation wide conservation bureau which has become closely identified with the preservation of historic sites and structures. A special section would be set up to administer this work and to compile the collected material. The present headquarters in Washington and San Francisco would be utilized and the staffs augmented for the period of this special program. A complete working library of the relatively few books on American architecture would be assembled. This organization would prepare the specifications for the drawings to insure uniform and readable sheets and prepare the file for final deposit in the Library of Congress alongside of the related material now there. It would administer the activities of field parties through the State organizations. It would cooperate directly with the National Advisory Committee in the guidance of the general program.

National Advisory Committee

The National Advisory Committee would consist of seven members—four from the architectural profession who have been especially identified with research in American architecture and three from civic and patriotic organizations. The former would be named by the American Institute of Architects and the latter by the Director of The Office of National Parks, Buildings and Reservations. The members of this committee would receive no compensation, but would be reimbursed for their transportation and subsistence during the several sessions in Washington.

State Board Offices

The organization of the executive work would be divided by states, with a branch office for each division. In certain areas one office might serve several states. In the older and larger states more than one office would be desirable. A total of sixty offices is the estimated need. In states with two or more offices, the central activity will be carried on through one of them designated to senior rank. The personnel of each office will consist only of one architect of Associate grade, and one or two clerk-stenographers. Space would be secured in government buildings or free of charge elsewhere through the cooperation of local agencies. It would be the duty of these offices to enlist the personnel, furnish the drafting supplies, assign the work, and cooperate with the State Advisory Committee.

State Advisory Committee

The State Advisory Committee would consist of three members from the Architectural profession within the State and two from local civic, patriotic or historic groups. All would be persons

previously identified with similar work. It would be the duty of this committee to assemble a list of the available measured and published drawings of historic buildings of its State and to furnish a priority list of projects to be undertaken.

The Enrolled Man

The employed men would be recruited entirely from the Architectural profession and organized into squads of two, four and six men, according to the size of the project and economy of transportation. The ranking member of the groups would be known as the Squad Leader and would be directly in charge, reporting to the State Executive. Each man would furnish his own drawing board, T-square, etc., though supplies such as paper, pencils and erasers would be furnished free.

Squad Organization

The number of squads would vary greatly in each area. Each squad would travel about the State measuring the buildings in order of their priority, drawing up their notes before proceeding to the next project. Subsistence at the rate of $2.50 per working day would be furnished while in travel status and transportation would be paid for by a mileage reimbursement of four cents per mile for privately owned vehicles—one per squad. It is suggested that squad leaders be paid at the rate of $1.10 per hour and regular enrollees $.90. This wage is based on the assumption of the 30-hour week and the use of trained and experienced men who would, in normal times, be capable of earning a considerably greater wage.

Photographic Work

To complete the data secured by this project there should be a supplementary program of photographic work. It is proposed to enlist the services of unemployed photographers at the rate of $1.00 per hour. Each photographer would furnish his own camera (a uniform size, probably 5" x 7") with the film provided free by the government. He would be reimbursed a standard rate (say 10¢) for developing each negative and making one print and turning the same over to the government. This arrangement will tend to distribute the money farther than any other low cost arrangement.

Historical Data

It is anticipated that the historical data incident to the buildings studied may be secured through local and State institutions and societies. Only the briefest resume of facts is necessary in each case and it does not seem necessary to build up an overhead for the purpose of getting data which is ordinarily obtainable gratis. The small but comprehensive library mentioned will provide for a great deal of it.

Publication

No funds are requested for the publication of the results. Considerable time will be necessary to classify the results and the advantages to be obtained can be demonstrated later in applying to Congress for a special appropriation. A fund for blueprinting is, however, provided for in the estimate.

Supplies

The following materials would be furnished free to the enrolled men: Tracing paper, pencils, erasers and moulding combs (for recording full size profiles). The enrolled men would be expected to provide their own drawing boards, T-squares, triangles, rules, scales, tapes, curves, and other materials which they can be reasonably expected to have already in their possession. Our cost estimate shows that only an average of $3.00 per man for supplies will be necessary for the two months period.

Cost Estimate

A rough calculation indicates that about $150,000 would be needed to finance the activity of 1,000 enrolled men. This would be paid out of groups as follows:

Enrolled Men	$341,000
State Executive Groups	96,000
National Advisory Board	1,000
National Executive Groups	10,000
	$448,000

This sum would be disbursed to a payroll of 1,200 persons and should be an important factor in relieving unemployment in the profession.

The length of time required to initiate this program depends entirely upon the freedom with which personnel can be set up. If appointments and purchases can be made outside of the usual slow channels, the program could be well under way by December 15.

Respectfully submitted,

CHARLES E. PETERSON,
Chief of Division.

Approved.....(date)
Arno B. Cammerer,
Director.

CEP:TJT

The memorandum printed above was approved four days later by Secretary of the Interior Harold L. Ickes and transmitted to Harry L. Hopkins, with an elaborate administrative breakdown on November 28. Field work was started soon afterwards. It is now believed to be one of the largest collections of its kind anywhere.

No history has been written of the Survey but its early days are sketched in an unsigned article by Dr. Leicester B. Holland, "H.A.B.S. Redivivus," *The Octagon, a Journal of the American Institute of Architects*, for November, 1934, and reviewed in Charles E. Peterson, "Our National Archives of Historic Architecture," *Ibid.*, July, 1936. The former included the "Tripartite Agreement" between the National Park Service, the American Institute of Architects and the Library of Congress effective as of July 23, 1934, and still in effect. The origins of the Survey are remembered in Henry H. Saylor, *The A.I.A.'s First Hundred Years*, (Washington, 1957) p. 176.

Through the years since the Survey began, the number of students and friends of American architecture has increased steadily. We hope through this department to keep them informed on how the Survey progresses and of the opportunities for cooperation.

LATROBE POSTSCRIPTS

Death of Lenthall

Mrs. Talbot Hamlin, writing from Dinner Key Marina, Miami, enclosed a letter of November 26, 1956, from Mr. George S. Witmer, 1018 Magnolia Avenue, Sanford, Florida, a descendent of the John Lenthall who supervised construction at the Washington Capitol for Architect Latrobe. Referring to the collapse of masonry when Lenthall was killed (September 21, 1808) Mr. Witmer wrote:

My great-grandmother, John Lenthall's daughter, was in her nineties when I was a boy & what she told me about her father did not register too well. My impression was that Lenthall was a rigid task master, entirely absorbed in his work & stubborn as a mule. This agrees fairly well with your description.

Of the accident she told me that the workmen claimed that the arch would not hold & refused to remove the supports, whereupon her father grabbed a maul or sledge saying, "I checked every stone & I know that it will hold" & knocked out the main support so that the arch came down & crushed him. The others were standing well back & were unhurt.

I have since been told by an architect that the main duty of the 'Clerk of the Works' in those days was to check the cutting of the stones for an arch, which makes the reputed remark more intelligible.

Portrait of Benjamin Henry Latrobe by Carl von Breda recently acquired by the Maryland Historical Society. The picture was exhibited at the Royal Academy in London in 1790. The painter was a Holland-trained Swede who lived in London. (Courtesy James W. Foster, Director, Maryland Historical Society)

The account referring to this unhappy accident may be found in Talbot Hamlin, *Benjamin Henry Latrobe* (New York, 1955), pp. 276–278.

Waln House, Philadelphia

Harold Donaldson Eberlein recently returned our copy of the book with some tipped-in comments about the Waln-Swaim house built in 1805 at Chestnut and Seventh Streets, Philadelphia, (see pp. 197–199).

The Waln house was not "placed well back on the lot" but stood directly on the S.E. corner of 7th & Chestnut Streets. The property, the full width of the Chestnut Street front, ran all the way back to Sansom St.

The purchaser from William Waln was not named Swa*i*n but Swa*i*m. He was *not* a doctor, but a bookbinder by trade. The formula for the patent medicine called "Swaim's Panacea" (from which Swaim made his fortune) he printed from an old book sent to him to be rebound.

Swaim did not change "the house into a public bath called Swain's [*sic*] Bath." Swaim's Baths occupied a large, elaborately equipped, and much-advertised establishment, which Swaim built on the rear end of the property, facing on Sansom Street.

We will be glad to publish further notes on Latrobe to supplement the study so magnificently compiled by our late friend, Talbot Hamlin.

BOOKS

PAUL F. NORTON, *Editor*

The Pennsylvania State University

Laurence Sickman and Alexander Soper, *The Art and Architecture of China* (Baltimore: Penguin Books, 1956), 334 pp., 190 plates. $8.50.

Mr. Sickman is the director of the Nelson Gallery of Art and Atkins Museum in Kansas City and a noted scholar in the field of Far Eastern art. This combination of practical experience and theoretical knowledge has made the Asiatic collections of his museum one of the most interesting in the country, and he has now written a very valuable book "Art," as interpreted in this series, means painting and sculpture. This relieved the author from writing about the ancient Chinese bronzes whose manufacture seems to have engaged the main artistic efforts of the Chinese for more than a millennium. The few exceptions dealt with here are a handful of vessels in animal shape and vases with figured friezes, all of which are carefully described as to subject matter, probable meaning, and style. Of this group I want to mention only one piece, a pot with a spout and a lid turned into a mask that looks like the realization of the popular (Western) idea of a devil's face. Though the several elements of this face are those of the period in which the vessel's body was cast, their rendering is so much at variance with the style of that period as to make one feel very uneasy. Mr. Sickman's description does nothing to dispel this uneasiness, which is much to his credit.

From the beginning of the Christian Era monuments become increasingly numerous, though what has survived is to a great extent what chance has saved from destruction by time and man. From the sixth century onward this material is supplemented by literary works which contain invaluable data of theoretical, practical, biographical, topical and historical nature. To these must be added the dedicatory inscriptions, often dated, on stelae and statues, and the inscriptions of painter and admirer on pictures. Mr. Sickman has most profitably drawn upon these sources.

There is, of course, ample room for different opinions when it comes to assigning a definite work to a definite epoch or master. I think it is obvious that the group in Cave XXI of T'ien-lung Shan (55 B) is later than the Bodhisattva from Tun-huang (57 B), and the stele (58) of the Metropolitan Museum later than the

two statues on Pl. 59. The wall painting in Cave 1 of Tun-huang is at least a century younger than indicated; the wooden figure of Kuan-yin (79) is a work of the fourteenth century; and the pottery Lohans (81 B, 82) can be safely assigned to the twelfth century. I must confess that Mr. Sickman's choice of illustrations for his admirably told story of Chinese painting from Sung times onward does not strike me as a happy one. To be sure, there are many indisputable masterworks, but mingled with them are paintings that do not nearly come up to the standard set by those excellent pictures. The author's efforts to discover something good and interesting in these lesser works are gallant, but not always convincing.

The section on architecture is lamentably short, all in all only 75 pages, yet it is the most valuable contribution to our knowledge in any Western language. This knowledge is still spotty, but this is due to the fact that the study of Chinese architecture is in its infancy. Research has been done primarily by Chinese and Japanese scholars. Mr. Soper has amply used the discoveries made by his Far Eastern colleagues. He did not waste the little space accorded to him with a discussion of generalities, but concentrated on the history of two basic types, the oblong hall on a platform and the pagoda.

The oblong hall, facing south and placed on a platform at the north end of a square court-yard that was entered through a gate to the south, was the architectural complex for house, palace and temple from Chou times (1027–256 B.C.) onward. The first chapters deal mainly with literary references which have been subjected to a close analysis. They yielded surprising information about size, use, internal and external planning, and the magic, symbolic and charismatic implications. What a hall looked like can be deduced from pottery models and from graphic representations dating from the Han period. At that time; namely, two hundred years before and after Christ, buildings of two or more stories seem to have been quite common. Two features which were to remain characteristic of Chinese architecture, were by then fully developed: the multiplication of roofs, one for each story, and the system of brackets that visibly support these roofs, and whose shape makes it obvious that the building business was essentially carpentry. Building in stone and brick was reserved for fortifications, bridges, tombs and one type of pagoda; the latter two succumbed more and more to the styles characteristic of structures in wood.

Seen from the distance that time and space provide the Western observer, the most striking feature of Chinese architecture is its tenacious traditionalism. By Han times the layout of palace, dwelling house, temple and monastery was already established. "The great, both in their mansions and in the public offices where they carried out their duties, made use of an architecture whose general layout was that of later times. The buildings were assembled around courtyards, with left balanced against right and the main hall in centre at the rear. Along the main axis courtyards succeeded each other with a corresponding increase in privacy. There were the inevitable front and side gates; a proper gate on axis was a building in itself, with side chambers. As in the later Buddhist temples, the court might be enclosed by galleries, leading back to the hall."

The oblong hall with its enormous hipped or hipped-and-gable roof, erected upon a terrace, was the most important building. Platform and protruding roof, though practical in origin, were the parts that underwent the most noticeable changes, especially the roof with its supporting brackets and ceiling. Mr. Soper describes these changes in great detail and in chronological order, pointing out technical improvements and aesthetic effects. It is mainly a change from the simple to the complicated, from the straightforward to the artful. By the eleventh century the brackets, eminently tectonic elements, seem to have lost their identity in a seething mass of curved and spiked shapes (Pl. 169, 181 B). Their function is no longer obvious and their order carefully masked. It was probably at the beginning of the Sung dynasty in the second half of the tenth century that the eaves were turned up at their ends, at least in northern China. This device alleviates to a remarkable degree the effect of weight and heaviness of the massive roof. In the south, this upward turn of the corners was always more ostentatious and elegant. Very likely it was "invented" there. Records date from the same time telling of glorious roofs covered with colored tiles, floors similarly decorated, and of interiors displaying a dazzling show of hues. Here are two important statements: "What the Sung architects achieved that was new in the design of individual buildings was a happy mixture of visual interest and structural ingenuity" (p. 262); and speaking of their artistic credo: "Dissimulation is so widespread, indeed, that it seems almost to have replaced frankness as an ideal" (p. 265). No doubt the Sung architects were driven by the same bold spirit of adventure that made their fellow artists in the field of sculpture and painting strike out for new ideals, and it was above all the ideal of unity, a new concept they strove to realize, one in which all component parts were subservient to the whole. "Ming and Ch'ing remains represent a prolonged decadence of the art and science of fine building. . . . The historian who should balance what he sees against the imagined accomplishments of earlier times, can hardly help finding the late style unimaginative and timid" (p. 283). Excellent judgement, and widely applicable!

All of this also holds for the pagoda, or better, for the two types of pagodas, the timber-framed and masonry structures developed in China. Mr. Soper gives a clear picture of their respective origins, their changing role in the plan of a Buddhist monastery, and their evolution in the course of their long and varied history, with dated or datable monuments from the sixth century onward as necessary and welcome *points de repère*.

This concise survey of Chinese architecture, restricted as it is in subject matter, is excellent. No doubt an enormous amount of work still must be done. New discoveries will lead to new insights and new interpretations. But any future work will have to take into account what Soper has said in this book.

LUDWIG BACHHOFER
University of Chicago

Geoffrey Webb, *Architecture in Britain: The Middle Ages* (Baltimore: Penguin Books, 1956), 231 pp., 192 plates. $10.00.

The volume covers English architecture from its beginnings in the seventh century to the opening of the Renaissance after the middle of the sixteenth. In his foreword Professor Webb remarks that the most important problem facing a work of this kind is the decision of what to leave out, and the book is indeed a masterpiece, in some respects a tour de force, in its intelligent selection and condensation of an almost unmanageably wide range of material. The author himself regrets having had to omit discussing such important aspects as military architecture and the social and economic features of his subject. His brief discussion of the mediaeval parish church is to some extent compensated for by G. H. Cook's recent publication, *The English Mediaeval Parish Church*. The criterion for what should be included was whether the appearance of the building was dictated "primarily by non-material considerations, one might almost say, by an appeal to the imagination."

The first chapter discusses the beginnings of English architecture as reflected in the group of eight churches in southeastern England, seven of which, including four in Canterbury, are located in Kent. This group seems to have derived its formal repertoire from the Continent. A second, northern group dating from the last quarter of the seventh century is best represented by the remains of Brickworth Church which possessed a nave and four bays with arches opening into the typical "porticus" or side chambers. While this feature links Brickworth with the first group, certain aspects of the masonry suggest affinities with the brick architecture of Ravenna and Rome. Professor Webb closes the chapter with a brief discussion of the primitive stone buildings which preceded these largely imported types, and of the early timber architecture in Ireland as well as Great Britain.

Little is known of English architecture during the eighth and

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ninth centuries, but after the age of Alfred the Great, English building underwent powerful influences of Carolingian architecture. In this respect the author generally follows the views of earlier historians like Clapham, Rice, and Bony. Indeed, one wonders whether this Continental influence is not stressed somewhat unduly. The entire discussion of English building from the end of the ninth century to the eleventh is subsumed under the chapter heading, "The Carolingian Tradition," and, indeed, as regards a monument like Athelney Church, the relation to Germigny-des-Prés is uncontested. I feel less certain regarding the vast influence attributed to St. Riquier (Centula). This church, of course, is known only through literary sources, and Webb seems to accept without qualification Effmann's somewhat hypothetical reconstruction. As Webb himself admits, no English church exhibits more than one or two of the characteristic features of St. Riquier and the Carolingian church offers no prototype of such typically English features as the absence of side aisles and, except in the crypts, the column; and also the shortness of the nave, or rather, the tendency to conceive the church as an aggregate of short rectangular units is characteristic. On the other hand, such features as the western sanctuary and the central tower have antecedents in Western Germany as do a number of ornamental details such as triangular arcading and the cubic capital. The remainder of the chapter is devoted to the architectural revolution in Normandy that preceded the great achievements of English builders after the Conquest. Webb inclines to attribute this revolution to the Cluniac movement, particularly as regards two important features of Norman architecture, namely, the double transept and the very long nave, of which the earliest Anglo-Norman specimen occurs in St. Albans as early as 1077. Yet, is not this second feature characteristically and traditionally English? Such early Anglo-Saxon churches as Hexham and Monkwearmouth have unusually long and narrow naves. Again Professor Webb aligns himself with those who have asserted German influence. For the famous churches of Tewkesbury and Pershore, no convincing German antecedent for the quadripartite elevation has been offered—quite apart from the fact that, as Anfray has pointed out, this feature is certainly not important enough to overshadow such eminently English characteristics as the elephantine cylindrical piers. The typical square east end of Anglo-Norman churches may or may not be due to Cistercian influences, but Professor Webb himself has reminded us that the apseless rectangular plan was typical of the earliest English churches, perhaps dictated by the conventions of the timber building tradition. Again, the tendency to divide churches into two almost independent spaces, characteristic of several Franciscan churches, is presented as typical of the architecture of this order without reference to the fact that it already occurs in a number of pre-Conquest structures. Professor Webb calls the Anglo-Norman chevron ornament an innovation of the early twelfth century, although he has told us earlier that, "Ireland has a strong claim to have originated this motif." Such stress upon Continental influences, often at the expense of the indigenous contribution, occasionally represents a certain flaw in an otherwise admirably balanced account.

As regards the structural aspects of the great Anglo-Norman churches, Professor Webb underscores the importance of what Bony was the first to call the system of the "thick" wall as developed in Normandy. He suggests that the development of English and French architecture during and since the twelfth century owes as much to the difference of materials and working techniques as it does to the difference in taste. The predilection for all-over linear pattern effects appears for the first time in Durham. The essentially English character of this trend has been stressed by Dagobert Frey and Pevsner, and Professor Webb admirably shows its development through all phases of the British Gothic. During the twelfth century Anglo-Norman undergoes a gradual change "from the extreme severity of the early post-Conquest buildings through a phase in which ornament is used lavishly and subject to a discipline fairly restricted to the structural lines of the building, to a mid-twelfth-century use of over-all effects of surface enrichment which in extreme cases shows a remarkable disregard for such structural considerations." Ely is a striking example of this gradual emancipation of the decorative element which Webb also traces in the development of English façades. But it is above all in its interpretation of Gothic that the English genius asserts itself. The first Gothic church, Canterbury Cathedral, was built by a Frenchman, yet even here strikingly linear effects are reproduced by the Purbeck marble shaftings. The device may have been used at an earlier date in France, but Webb rightly stresses its peculiarly English character in Canterbury. Equally English, or at least Anglo-Norman, is the continued use of the "thick" upper wall—exhibiting the depth of the clerestory wall which French Gothic would have concealed. Lincoln, the descendant of Canterbury, is in many respects the most extraordinary of English churches. The eccentricity of its "crazy" rib system, its wall arcading in two planes, and the curious crockets along the full height of some of the piers have been stressed in a recent paper by Paul Frankl, yet Webb convincingly interprets the Lincoln rib system as yet another tribute to the linear tradition, while reading the wall arcading as a development in a third dimension of the Norman intersecting arcade. Is not the arcading in the great cloister of Mont-Saint-Michel based on the same principle? The delight for the exquisite and splendid that appears in English building at the end of the twelfth century has, I think, parallels in France (Soissons). But in discussing such buildings as the Lady Chapel at Glastonbury and Wells Cathedral, Webb rightly points out the English trend against both Gothic functionalism and Cistercian severity. The triumph of this development came with Westminster Abbey. Webb shows admirably that though French in inspiration, "Gothic is spoken with a strong English accent at Westminster Abbey," as is apparent above all in the "predominance of the illuminator," that is, of color decoration. The influence of Westminster Abbey was bound to be vast. Its east end was copied in Old Saint Paul's, its chapter house at Salisbury. Even more important was its effect upon the entire character of decoration that appears in English architecture in the mid-thirteenth century. It is already noticeable in the Angel Choir of Lincoln—its name derived from the figures of angels in the spandrels of the middle story—but above all at Exeter, begun about 1280, that is, the time that Lincoln was finished. Here "the emphasis on surface texture and color is developed far beyond anything to be seen at either Westminster or Lincoln," while the bundles of vault ribs, so numerous that the vault segments between them appear only as a series of pockets of shade, marked the complete victory of line over surface.

In discussing the genesis of English late mediaeval style, Webb again defines the role of French influences. The Royal Chapel at Westminster was inspired by the Ste. Chapelle (Paris) and the author even believes that such decisive aspects of Perpendicular as the taste for the geometrical and even for panel effects "may be due to the knowledge by the court masons of the French late thirteenth and early fourteenth century precedence."

As regards fan vaulting, it seems likely that a very early example, preceding even the Gloucester Cloisters, was built in 1360–70 over the chapter house at Hereford.

The remaining chapters are devoted to Roman and Gothic buildings other than churches, to the parish church, and to the last phase of English mediaeval building culminating in the Henry VII Chapel at Westminster.

The book does not make easy reading. Limitations of space have caused descriptions to be terse and information limited to bare essentials. As a result, the reader does not easily grasp either the flow of historical development or the aesthetic characteristics or importance of the great buildings described, but the book is incomparable as a storehouse of information and judicious interpretation of historical facts. I cannot think of any significant aspect of the subject on which the reader will not find information that is reliable and based on the most recent findings of scholarship. As a handbook of mediaeval English architecture the work will long remain indispensable and unsurpassed.

OTTO GEORG VON SIMSON
University of Chicago

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BOOKS RECEIVED

(Mention of a book here does not preclude its subsequent review.)

Peter Brieger, *English Art, 1216–1307* (Oxford: Clarendon Press, 1957). $11.50.

Harold Burris-Meyer and Lewis Goodfriend, *Acoustics for the Architect* (New York: Reinhold Pub. Corp., 1957). $10.00.

Norman Cherner, *Fabricating Houses from Component Parts* (New York: Reinhold Pub. Corp., 1957). $7.95.

Edward Robert De Zurko, *Origins of Functionalist Theory* (New York: Columbia University Press, 1957). $5.00.

Frederick Gutheim, *One Hundred Years of Architecture in America* (New York: Reinhold Pub. Corp., 1957). $4.00.

George Hay, *The Architecture of Scottish Post-Reformation Churches, 1560–1843* (Oxford: Clarendon Press, 1957). $10.10.

Ōda Hirotarō, Tanabe Tai, and Hattori Katsukichi, *Nippon no Kenchiku* (The Architecture of Japan). (Tokyo: Shōkokusha, 1954). 2000 yen.

Bunji Kobayashi, *Amerika Kenchiku* (Architecture in America), (Tokyo: Shōkokusha, 1954). 1400 yen.

George Lesser, *Gothic Cathedrals and Sacred Geometry*, 2 vols. (London: Alec Tiranti, 1957). £2/2 the set.

Oscar Lewis, *Here Lived the Californians* (New York: Rinehart & Co., 1957). $7.95.

Frederick Doveton Nichols, *The Early Architecture of Georgia* (Chapel Hill: The University of North Carolina Press, 1957). $15.00.

Lawrence B. Perkins, *Work Place for Learning* (New York: Reinhold Pub. Corp., 1957). $4.00.

Hugh Plommer, *Ancient and Classical Architecture*, Vol. I, Simpson's History of Architectural Development (New York: Longmans, Green & Co., 1956). $6.75.

Dorothy and Richard Pratt, *A Guide to Early American Homes, South* (New York: McGraw-Hill, 1956). $6.95.

Dorothy and Richard Pratt, *A Guide to Early American Homes, North* (New York: McGraw-Hill, 1956). $6.95.

Record Houses of 1957, by the editors of *Architectural Record* (New York: F. W. Dodge Corporation, 1957). $2.95.

Henry H. Saylor, *The A.I.A.'s First Hundred Years* (Washington: A.I.A. the Octagon, 1957). $4.00.

Published for the Institute's centennial celebration. All of the available information concerning the origin, administration, competitions, publications, and general influence on American architecture has been carefully gathered by the author. The Institute's breadth of interests is well demonstrated, though one fails to find mention of their generous support of the SAH.

G. E. Kidder Smith, *Sweden Builds* (New York: Reinhold Pub. Corp., 1957). $10.00.

This is the second and revised edition of Mr. Kidder Smith's magnificent collection of photographs. He owes his success not only to his skill with the camera, but to his sound architectural training which has provided him with a foundation for his art.

Clarence S. Stein, *Toward New Towns for America* (New York: Reinhold Pub. Corp., 1957). $10.00.

A revised American edition which provides some new material relative to the American scene.

Cecil Stewart, *Early Christian, Byzantine and Romanesque Architecture*, Vol. II, Simpson's History of Architectural Development (New York: Longmans, Green & Co., 1954). $5.75.

Randle Bond Truett, *Monticello, Home of Thomas Jefferson* (New York: Hastings House, 1957). $3.50.

Renate Wagner-Rieger, *Die italienische Baukunst zu Beginn der Gotik*, Part I, *Oberitalien* (Graz-Köln: Hermann Böhlaus, 1956). DM 18,60.

Arnold Whittick, *Eric Mendelsohn* (New York: F. W. Dodge Corp., 1956). $9.85.

Wilhelm Worringer, *Form in Gothic* (London: Alec Tiranti, 1957). 25s.

The continued interest of modern scholars as well as laymen in the Gothic Age has provoked the publishers to reprint the first English translation of this famous attempt to explain mediaeval art by psychological means. Sir Herbert Read has written a short introduction containing an interesting quotation from T. E. Hulme, the English philosopher most strongly influenced by Worringer.

Bruno Zevi, *Architecture as Space* (New York: Horizon Press, 1957). $7.50.

Building, U. S. A., by editors of the *Architectural Forum* (New York: McGraw-Hill, 1957). $3.95.

In a modest, yet successful way the editors have examined architecture as more than an art. They discuss those forces one tends to forget when a building is completed and stands mutely before the critic; they describe the part played by the real estate operator, the lender, the contractor, the engineer, and the public.

Index of American Architectural Drawings Before 1900 (Charlottesville, Va.: American Assoc. of Architectural Bibliographers, 1957). Pamphlet of 24 pages.

Historians should take note of this aid to their work. Although not by any means a complete list of drawings, it is a worthy start and should be amplified by asking for the cooperation of the members of the SAH in some methodical way.

New World Writing, No. 11 (New York: Mentor Book, 1957). $0.50.

This issue contains an essay by Henry Hope Reed, Jr., which may have escaped the notice of historians. The title, "The Modern is Dead—Long Live the Modern," is indicative of the contents.

PERIODICALS RECEIVED

Archivo Español de Arte, Madrid, Spain.

No. 113. Jan.-March 1956, pp. 9-42. José María de Azcárate, "La obra toledana de Juan Guas." The article is about a Gothic architect of the Hispano-Flemish school from Toledo who began working there in 1453 with his father Pedro Guas under the direction of Master Hanequin of Brussels. As Their Catholic Majesties' Chief Architect he built the Monastery of San Juan de los Reyes in Toledo. Illustrated.

No. 115. July-Sept. 1956, pp. 173-188. José María de Azcárate, "El convento de Uclés y Francisco de Luna, maestro de cantería." The writer attributes to Luna the construction of the "Cuenca plateresque" part of a monastery of the Order of St. James near Cuenca, New Castile. Illustrated. Pp. 211-242: Consuelo Sáenz de la Calzada Gorostiza, "El retablo barroco español y su terminología artística. Sevilla." Explanations of technical terms used in Seville in the seventeenth century to designate parts of church altars. Illustrated.

GERALD MOSER
The Pennsylvania State University

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LETTERS

Editor, *SAH* JOURNAL

Dear Sir:

It has been brought to my attention that there is an error in the last paragraph of my paper "Thomas U. Walter and the University at Lewisburg" (*JSAH*, XVI, 1 [Mar. 1957], 24). This paragraph states that in 1857 Walter, William Strickland and A. J. Davis refounded the American Institute of Architects.

In the first place, Strickland was dead in 1857. Secondly, neither Walter nor Davis was present at the first meeting of the group which was to become the American Institute of Architects. This group, headed by Richard Upjohn, was formed in 1857. Walter and others joined it later on.

What made me think that Walter "refounded" the A. I. A. together with Davis, Strickland and others was that these men had, in 1836, founded an American *Institution* of Architects. Davis was president and Walter secretary. However, there were apparently no meetings of the American Institution of Architects after 1837. Thus twenty years passed until a quite different group founded the present organization. Although members of the earlier group were asked to join the second, it is certainly stretching a point to state that they were in any sense "refounders."

Nevertheless, Walter did claim this (A. I. A. *Proceedings* [Philadelphia, 1870], p. 7), and later on the error was repeated by G. C. Mason (A. I. A. *Proceedings* [Buffalo, N. Y., 1888], p. 104). Mr. Mason's allegation appeared yet again in the A. I. A.'s own *Journal* (VIII, No. 5, 225–230) for November, 1947, without contradiction.

Fortunately this does not affect the plausibility of the supposition I was making in my paper: to wit, that Walter supported the A. I. A. partly to assist the public at large in distinguishing between professional architects and building contractors. I cited Walter's experience at the University at Lewisburg as an instance of the need for such a distinction.

I am grateful to Miss Louise Hall and to Mr. George Pettengill for their assistance in setting the record straight.

GEORGE L. HERSEY
Bucknell University

Editor, *SAH* JOURNAL

Dear Sir:

Perceiving in the historical eye of my friend George L. Hersey a mote (wrong personnel forming The American Institute of Architects in 1857—*JSAH*, XVI, 1 [Mar. 1957], 24), I am humbled by noticing in mine own a beam (pre-1790 claim by the Carpenters' Company to formation in 1724—*Ibid.*, XV, 4 [Dec. 1956], 27).

As to the latter, the American Notes Editor's discovery of Loxley's provocative note replaced the traditional "1724" with a more definite "February, 1726/7." In my commentary I alleged that the Carpenters' Company laid no claim to "1724" until 1790. Here I overlooked the familiar "1724" on an engraving printed for the Company between Master Joseph Fox's death, 1779, and early 1787. Obviously this antedates the identical claim in their Act of Incorporation, 1790, upon which my argument too hastily rested. Unchanged is the story of the claim's deep slumber from soon after 1790 until the antiquarian awakening that inspired the "restoration" of Carpenters' Hall in 1857—an event to be celebrated during this centennial year.

Now, the same nineteenth-century forces that awakened the Company's slumbering claim likewise propelled the architects into two flurries of concerted action separated by the Panic of 1837, as I once showed ("Mills, Strickland, and Walter: Their Adventures in a World of Science," *Magazine of Art*, XL [1947], 271).

In 1836–37 Thomas U. Walter had been secretary of the American *Institution* of Architects, to which Richard Upjohn never belonged. That organization, like prosperity, soon expired. Twenty years later Upjohn founded in February 1857 the New York Society of Architects, which invited a few outlanders—among them Walter—to its second meeting on 10 March 1857 (Everard M. Upjohn, *Richard Upjohn, Architect and Churchman* [New York, 1939], p. 160). Walter carried with him to that meeting the papers of the old Institution, as will be seen. More important, it was Walter who that day made the motion "that the name of the Society be changed from the 'N.Y. Society of Architects' to 'The American Institute of Architects'" (Rough Minutes, Upjohn Papers, New York Public Library).

Thus Upjohn founded, and Walter christened, The A.I.A. which currently celebrates its own centennial year. Its members accepted Walter's gift of the old Institution's papers at the second meeting, but only at the third meeting on 13 March 1857 were the papers clearly identified as such. The rough minutes for that day reveal that Mr. "Walters," after showing "photographs of general plans and details of the Capitol and other plans [last word erased] Public buildings which are in progress of erection under his direction at Washington," presented to the new organization "documents connected with former Society [last two words erased] an Institute which was organized in 1836."

The few surviving papers of the old Institution—brought to light by A.I.A. Librarian George E. Pettengill—will be discussed in a forthcoming publication. By a quirk of fate our loss of the rest was all but foreordained on 10 March 1857, the very day the new organization accepted Walter's overly trustful deposit. The members, voting their way that day through the proposed Constitution and By-laws one article at a time, paused long enough at By-law X—concerning papers—to alter the words "be filed for preservation" to "be at the disposal of the board."

Had the words "be filed for preservation" been insistently retained in 1857, The A.I.A. would have elevated itself at one leap to the plane of historical consciousness just then attained after 130 years by the Carpenters' Company of the City and County of Philadelphia. It is to be hoped that the respective anniversary celebrations in 1957 may freshen the significance of the truism that archival activity is a sign of organizational maturity.

LOUISE HALL
Duke University

SAH NEWS

THE AUGUST TOUR

The seventh annual August field trip of the Society was held in and around Bethlehem, Pa., on the weekend of August 17–18. The tour was planned and led by Daniel M. C. Hopping.

PHOTO REFERENCE COLLECTION IN ROME

The International Union of the Institutes of Archeology, History, and History of Art in Rome has established a Photo Reference Collection of Roman Architecture and Topography located on the premises of the American Academy in Rome, Via Angelo Masina 5. The collection consists of a systematic photographic documentation of the monuments of Ancient Rome and of Roman Italy and is furnished with a cross-reference index; every photograph is provided with bibliographical references. The photo reference collection is combined with an Information and Sales Service.

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